

PURCHASING

THE NATIONAL MAGAZINE FOR PURCHASING AGENTS • SINCE 1915



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Read article on page 51

CONOVER • MAST PUBLICATION

NOVEMBER, 1942

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He has staked a lot to be able to help you



CALL YOUR REPUBLIC DISTRIBUTOR FIRST

He has spent large sums of money and a lifetime of work to be able to serve industry—dependably, promptly.

He has carefully selected his source of supply, maintained widely diversified stocks, built a specialized organization, made it his business to know the industries in his area—so that he could supply their needs on short notice.

Now, wartime conditions have made it more and more difficult for him to give that service. He must operate under Governmental allotments and priorities. Mill shipments are slower—because war orders come first.

Because of this he may not be able to deliver *ALL* the sheets, pipe, bars and shafting, boiler tubes, electrical conduit, bolts, nuts, wire and nails you want today—but he's sticking to his guns. For he knows that you

need help now more than ever—and he still can serve you in a lot of ways.

If you have proper priority, he may have enough stock to tide you over until new shipments arrive. He may be able to offer alternate sizes or grades that will answer your purpose. If not, there's always a chance that he can get them for you.

Call your Republic Distributor *first*. He may be able to save you valuable time. Tell him how the material is to be used and the priority rating—and see what he can do. Republic Steel Corporation, General Offices: Cleveland, Ohio.

Berger Manufacturing Division • Culvert Division
Niles Steel Products Division • Steel and Tubes Division
Union Drawn Steel Division • Truscon Steel Company
Export Department: Chrysler Building, New York, New York

Republic
STEELS AND STEEL PRODUCTS



CENTURY MOTORS

are Famous for Their
Ability to "Keep a-running"



1/4 HP Direct Current Ball Bearing,
Fabricated Steel,
Water Proof Navy
Motor



3 HP Direct Current Ball Bearing,
All Steel Navy Motor

They are serving the Armed Forces of the United Nations with a distinction that is important to you.

Standing the Shock of Battle

In the Naval Service, in typical applications, modern Century Motors aboard ship must stand up under the shocks of gun-fire and bombing attacks. They are especially built to take the punishment of actual combat.

And the Demands of War Production

Similarly, on the production front, Century Motors are staying on the job under 24-hour, continuous, 3-shift production. They take the shock loads of the heaviest machinery, yet their unusual freedom from vibration helps speed up the finest precision machine tool production.

For the Future

Because of War demands, Century is now engaged in the production of a wider range of motors, generators, and other rotating electrical apparatus than ever before. As a result, when Victory has been won, we'll meet your requirements with an extended, improved, and more complete line than we have offered since our founding in 1903.

Because of what Century is doing today — we'll serve even better tomorrow.

CENTURY ELECTRIC COMPANY

1806 Pine Street, St. Louis, Missouri
Office and Stock Points in Principal Cities



301

Century Motors, both alternating and direct current, are being produced for the operation of the many kinds of machine tools, industrial fabricating and

processing machinery used in the manufacture of ammunition, munitions, cargo and combat ships, and for driving their operating equipment.

One of the Largest EXCLUSIVE Motor and Generator Manufacturers in the World.

PURCHASING, published monthly by Conover-Mast Periodicals, Inc. Publication Office, Orange, Conn. Editorial and Executive Offices, 205 East 42nd St., New York, N. Y. Entered as second-class matter August 8, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription, \$3.00 a year in the U. S. A. Canada and Foreign \$4.00. Volume XIII, No. 5

When writing Century Electric Company please mention Purchasing

ARMY

NAVY

Proudly it flies

SYMBOL OF A PLEDGE UPHELD

TODAY, from the flagstaff of the Thor plant in Aurora, Illinois there flies the "E" Banner representative of the joint Army-Navy Production Award, signifying excellence on both Army and Navy production.

And, proudly, Thor employees wear the "E" lapel pin.

Fully aware is every man and woman of Thor of the significance of the honor which has come to them. They regard it, humbly, as the symbol of a pledge upheld.

MONTHS ago, the men and women of Thor gathered in the shadow of the plant and made a pledge.

The pledge was, "We'll Produce the Plus."

It was a pledge made solemnly by determined people who knew that the portable power tools they make would help to build the planes, the tanks and the ships with which the war must be won.

Months ago, they rejected the thought that "Too little, too late" could be applied here.

That's why shipments leaving the plant have doubled, then doubled again . . . have

resulted in more tools produced than anyone ever thought possible.

In our own way . . . in the only way we know how . . . we have added our part to the industrial effort that is so necessary for the fighting of battles wherever conflict rages.

For this reason, we look upon the award of the Army-Navy "E" as symbolic of a pledge upheld.

★ ★ ★
To you, the users of Thor tools, we report this conferring of the Army-Navy "E" with the stern realization that our task is just begun.

Not while a plane is delayed in its departure, not while a ship lies waiting on the ways, not while a needed shell is uncompleted, can there be any feeling of satisfaction or accomplishment.

Today, with even greater determination, we reaffirm our purpose and now pledge . . .

"We'll Exceed the Need!"

Thor

Portable Pneumatic and Electric Tools

INDEPENDENT PNEUMATIC TOOL COMPANY



600 W. JACKSON BOULEVARD, CHICAGO, ILL.

Branches in Principal Cities

HOW WILL THE WPB LAMP LIMITATION ORDER AFFECT YOU?

[*Every user of G-E MAZDA Lamps will want to know the answers to these questions*]

1. WHAT IS THE PURPOSE OF THIS LIMITATION?

The general purpose of WPB order L28A is to conserve critical materials.

* * *

2. WHAT SIZES AND TYPES OF LAMPS ARE AFFECTED?

The lamps that are to be discontinued are types or colors which are not essential either to civilian needs or to the war effort:

In the fluorescent line, colored lamps will be discontinued. Only 3500° White and Daylight lamps will be available.

Among the filament lamps, 10, 15, 25, 40, 60, 100 and 150 watt sizes will be available as before. The following are discontinued:

50 and 75-watt sizes.

Flame tint and colored lamps (except red, green, and blue in certain sizes).

Purely decorative lamps such as flame-shape and some round bulbs.

On voltages, there will also be a simplification. Available voltages will be only 115, 120, and 125.

* * *

3. WHAT EFFECT WILL THIS HAVE ON INDUSTRY, COMMERCE, HOMES?

These changes will work little hardship on homes, offices, stores or factories. Fluorescent lamps in 3500° White and Daylight are the

ones which industry needs. Mercury lamps will be available as before. Beside the necessity of good light to speed war production, there will be light for safety in our streets, light for transportation, light in our schools and hospitals, as well as the necessary amount of light in homes and stores and offices.

Homes and stores will have to get along without certain decorative lamps. But the very purpose of this order is to conserve critical materials and, at the same time, to supply the essential needs of war industry and essential civilian needs with as little inconvenience as possible to all concerned.

* * *

4. ARE STOCKS OF DISCONTINUED ITEMS STILL AVAILABLE?

All discontinued lamps now on our schedules will be available until present stocks are exhausted.

* * *

As the war goes on, it is only natural to expect that there will be fewer types and sizes of lamps available. Whatever inconvenience is involved, however, is a small sacrifice for any of us to make to help win the war.

We, in General Electric, pledge to the users of G-E MAZDA lamps that we will continue to supply the most efficient lamps that G-E Research and G-E manufacturing skill can produce.

G-E MAZDA LAMPS

GENERAL  ELECTRIC

There's a G-E MAZDA lamp for every essential lighting need. MAZDA is not the name of a thing, but the mark of a research service.

When writing General Electric Company please mention Purchasing



WHEN YOU BUY SORG PAPERS, you're getting the benefit of an unusual paper-making skill which results from 90 years' experience. You're getting the results of year-after-year pioneering in meeting the needs of virtually every kind of business that uses paper. Naturally, this means—

SURE-FOOTED AND SWIFT SOLUTION, of *your* paper problems. For its policy of pioneering the production of better papers for any specified purpose has bred in Sorg personnel a wealth of resourcefulness. To the

men in the Sorg organization, a new paper problem is something to be met and solved. In considering a specialty paper, please remember that—

OUR LABORATORIES ARE AT YOUR SERVICE. We are ideally qualified in personnel, equipment, and available raw materials to develop exactly the paper that will best meet your needs . . . Or, out of our long experience, we will recommend a Sorg stock paper which will give you complete and lasting satisfaction.



THE SORG PAPER COMPANY . . . MIDDLETOWN, OHIO

Manufacturers of a wide variety of Fourdrinier and Cylinder papers . . . Specially constructed papers made to individual orders.

STOCK LINES: Equator Offset • Equator Index
Bristol • Cream Sorex • White Sorex • No. 1 Jute
Document • Buckhide Tag • Valley Cream Post
Card • Middletown Post Card. For Converting Use:
DBL (Double Bleached Lined); DIP (Dyed-in-Pulp).

CHICAGO OFFICE: Daily News Bldg.
NEW YORK OFFICE: 370 Lexington Ave.
REPRESENTATIVES, BOSTON: C. H. Dodge, 10
High St. **ST. LOUIS:** H. E. Bouis, Ambassador Bldg.
LOS ANGELES: N. L. Brinker, 122 S. Central Ave.

When writing The Sorg Paper Company please mention Purchasing



Osborn End Brushes are stepping up some operations as much as 700%

THE tight, awkward, hard-to-get-at places on a job that must be cleaned of weld-scale, burrs, rust, grease or corrosion—these are war production bottlenecks that Osborn's End Brushes will crack for you, once and for all.

Throughout industry these remarkable trouble-shooting tools—there are

many more types than can be shown here—are digging in and getting the job done with tremendous economies of time, labor and cost. In one aircraft plant alone a rivet-bonding operation has been speeded up 700%!

Adaptable, hardworking and versatile, Osborn End Brushes can be used on all standard power tools, air or electric. To help you "beat the promise" on your war production line there's an Osborn Brushing Specialist in your district. Make a date with him today. Or write *The Osborn Manufacturing Co., 5401 Hamilton Avenue, Cleveland, Ohio.*

MACKLIN GRINDING WHEELS



MACKLIN COMPANY

Manufacturer of Grinding Wheels

JACKSON, MICHIGAN, U. S. A.

Sales Offices

CHICAGO - NEW YORK - DETROIT - PITTSBURGH
CLEVELAND - CINCINNATI - MILWAUKEE
PHILADELPHIA

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A PLASTIC DERBY



TO CATCH LIGHTNING

Sometimes we surprise ourselves, as well as our customers, with the amazing jobs we do with plastics. For example, we make a plastic explosion chamber—resembling a large derby hat—that's used to catch and stop the surge of a lightning bolt on a power line. And it does the job.

Today—besides explosion chambers—our presses are turning out millions of plastics parts for the army, navy, air corps and

essential industry. We are developing new plastics materials and learning new manufacturing skills that are making better weapons of war.....and will also make better products of peace.

At One Plastics Avenue we offer complete development, design, engineering, and manufacturing facilities for plastics products. For information write Section A-11, One Plastics Avenue, Pittsfield, Mass.

PLASTICS DEPARTMENT
GENERAL ELECTRIC



PD-84

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1. **GRINDING WHEELS**—The production of refined surface finishes as applied to the regrinding of metal cutting tools to increase tool life and work quality is discussed in a liberally illustrated book of 24 pages in convenient 5" x 7" size. Norton Co.

2. **ELECTRIC FURNACES**. A 24-page booklet, 8½ x 11 in. covering all aspects of the Heroult electric furnace. Includes brief history, features of the three-phase, arc furnace, use in melting and refining, types, sizes and capacities of furnaces, where the electric furnace is desirable to use, suggestions for installation and a long list of users. Well illustrated with spectacular photographs of actual installations. American Bridge Co.

3. **INDUSTRIAL LIGHTING**. Catalog of specifications and descriptions on fluorescent, mercury and incandescent lighting and fixtures for all purposes including offices, mills and factories, indirect, recessed, trough and incandescent show window illumination. Included are many facts on the reflectivity of different reflector surfaces and tables to determine foot-candles and lumens needed to illuminate rooms of different sizes. Curtis Lighting, Inc.

4. **SELF-LOCKING NUTS**—A 21" x 27" wall chart, designed for reference in maintenance shops and engineering departments

explains by pictures and text the various uses of self-locking nuts and the methods of application of the types most widely used. Elastic Stop Nut Corporation.

5. **FLOOR PATCH**—A floor-resurfacer material which adheres to old concrete or wood and can be exposed to traffic immediately after the patch or overlay is



completed is described in a 4-page circular. Traffic smooths and tamps the patch. Flex-rock Co.

6. **CLEANING COMPOUNDS** — An instructive folder about cleaning compounds for the electroplating industry. Photographs and text describe still tank cleaning, cleaning steel, aluminum, white metal and cuprous metals, electric cleaning and cleaning compounds used in tumbling and burnishing operations. A work flow diagram shows the layout of a cleaning system. Magnuson Products Corp.

7. **MATERIAL HANDLING EQUIPMENT** —A diversified line of hydraulic drive trucks and elevating tables, together with utility hand trucks and steel frame skid platforms, is illustrated in an 8-page condensed catalog bulletin, two pages of which illustrate the equipment at work in standard and special applications. Lyon-Raymond Corporation.

8. **PERSONNEL MANAGEMENT** — A 72-page, pocket-size, spiral-bound book used by a company which has needed to triple its working force, presents a carefully thought out procedure for getting new workers more quickly oriented to their new surroundings. Copies are offered to other manufacturers facing a parallel problem. Manning, Maxwell & Moore, Inc.

9. **PUMP STRAINERS**—A single-sheet bulletin illustrates and describes a line of four types of strainers in which the easy-to-clean feature was stressed in the designing, through the incorporation of more easily removable baskets. The strainers are available in all iron, bronze-fitted, and all bronze. Blackmer Pump Co.

10. **MOTOR & SWITCHBOARD CONTROL CENTERS**—In a 20-page bulletin is presented a line of standardized and pre-fabricated control centers, consisting of vertical troughs into which are plugged combination units of magnetic starters and disconnects and switch and circuit breakers units, of 30 to 600 amperes. The Trumbull Electric Mfg. Co.

11. **VISIBLE CARD INDEX SYSTEMS**—A small circular introduces a new type of visible system of loose-leaf type which, by means of an interlocking feature of the cards, exposes a series of cards at a time. The systems are made in 3 card-sizes—3" x 5", 4" x 6" and 5" x 8"—with drawers of 200 to 500 card capacity. Commercial Visible Systems.

12. **MOTOR GENERATORS** — Illustrations and descriptions of D-C generators in sizes of 50 watts to 200 kilowatts and A-C generators from 500 watts to 150 kilowatts. Also, motor generator sets are illustrated and described for all purposes including

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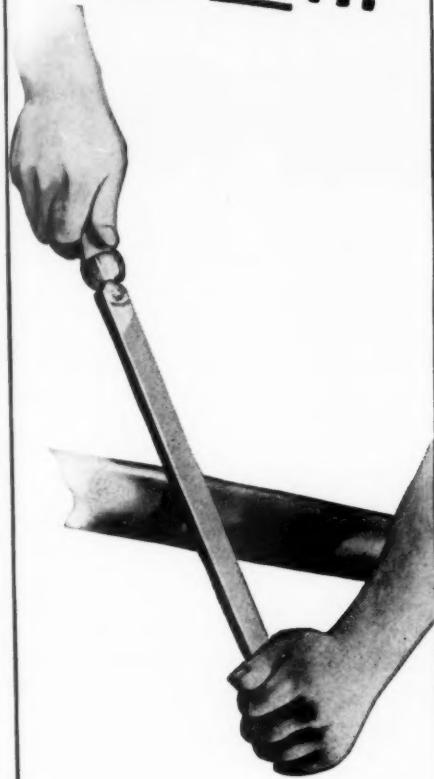
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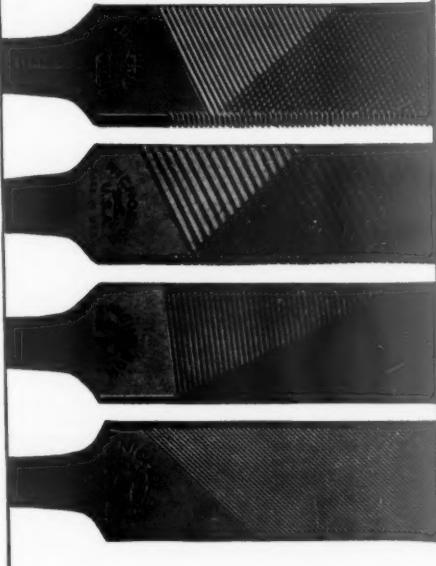
Proper Use...



Proper Care...



Proper Selection



...saves time—saves materials—saves files



This is a war in which conservation is as important as *production*. It applies to tools as well as to materials and products. And few tools serve more widely than files.

Machine-shop and industrial concerns are having to get along with more and more inexperienced workers. Waste from improper file use, care and selection is becoming a growing problem.

Superintendents and foremen can do something about it. Posting or circulating the rules of proper file use and care suggested at the right will help to improve the worker's efficiency, save his time, increase

his output, conserve materials, reduce spoiled work, make files themselves last longer (conserving file steels, too).

Nicholson has literature useful as "shop-school texts." Write us on any problem or efficiency program in which our experience with files and filing might be helpful. For your file needs, consult your mill-supply house.

*Free Technical Bulletins on Nicholson or Black Diamond Special Purpose Files for: Stainless Steel, Aluminum, Brass, Lathe Filing (these four illustrated above), Die and Foundry Castings, Plastics, Die Making, Shear Tooth Filing.

NICHOLSON FILE CO., PROVIDENCE, R. I., U. S. A.
(Also Canadian Plant, Port Hope, Ontario)

"DO" and "DON'T"

- Use *The right file for the job.**
- Don't "tear" into the work with too much pressure on the forward stroke.
- Don't "drag" the file back under needless pressure.
- Don't throw files among other tools or objects.
- Don't stack files against, or lay them on top of, one another.
- Keep files dry so rust will not corrode their cutting edges.
- Keep files clean of filings. After every few strokes, tap file on bench or wooden object to loosen chips. Brush file frequently with file brush or card; and always before putting the file away.

NICHOLSON FILES
FOR EVERY PURPOSE

NICHOLSON
U.S.A.
MADE IN U. S. A.

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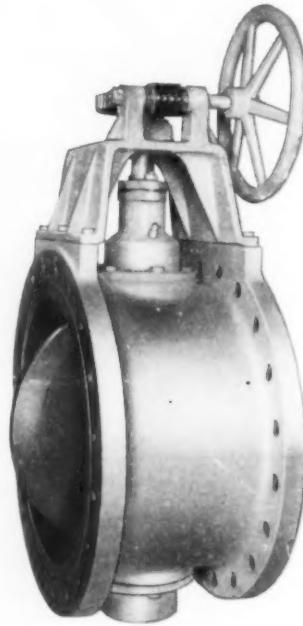
oil fields, isolated mining, radio broadcasting, motion picture projection, battery charging and many other special operations. Century Electric Co.

13. **SWITCHES, CIRCUIT-BREAKERS, PANELBOARDS.** Illustrates and describes in its 76 pages, all types of industrial safety switches, general purpose switches, indoor and outdoor meter boxes, circuit breakers, lighting panelboards, distribution panelboards, electric motor controls, manual starters, magnetic relays and push button control stations. Square D. Digest. Square D Company.

14. **AUTOMATIC CONTROLS.** A 60-page book, 8½ x 11 in. covering automatic controls for all types of industrial applications including heating, refrigeration and air-conditioning. Complete wiring diagrams are included and illustrations of all the various designs of controls such as for blowers, time clocks, fans, gas, oil burners, pressure limit, low water, refrigeration, vacuum and other controls. Sizes and capacities and many list prices are also given. Mercoid Corporation.

15. **WARTIME ELECTRIC MOTOR CARE** —A manual that tells among other things how to correct misalignment by ear; how to remove dust; five ways to dry out a motor; locating sources of vibration; how to make motors last longer. Allis-Chalmers Mfg. Co.

16. **BUTTERFLY VALVES** —A line of precision machined and wedge tight butterfly valves for regulation and shut-off duty for air, gas, steam, liquids and semi-



solids is presented in a 16-page catalog. Standard sizes range from 2" to 84", for working pressures from 2 to 150 lbs., with valves for higher pressures available on order. R.S. Products Corporation.

17. **TRANSFORMERS** —A reference book, in which articles are collected discussing symmetrical components, parallel operation, three and four winding transformers, temperature rise, angular displacement and combined voltage and phase angle control. Contains 44 pages and is illustrated with photographs and drawings. Allis-Chalmers Mfg. Co.

18. **INSULATED WIRE AND CABLE**. Complete specifications on all kinds of rubber insulated wire and cable. Includes sections on building wire and cable, rubber-covered fixture wire, flexible cords, antenna wire, thermostat control cable, armored cables, oil-burner ignition and neon sign cable, radio and radio hook-up wire and cable. Technical data and useful information about wire and cable are included. Anaconda Wire & Cable Co.

19. **FLUORESCENT LIGHTING**. How to determine volume of illumination needed for a room, work out spacing of fixtures and their height and characteristics of a room that affect their location. Pages of specifications provided on footcandles available at various heights from fluorescent lighting from 50 to 200 watts in special reflective fixtures. Hygrade Sylvania Corporation.

20. **WAR PLANT LIGHTING** —Covers most of the illumination problems that might be encountered by plants engaged in war work. Sections are devoted to lighting drafting tables and drawing boards, inspection frames and sides of machines, open vats, bins, shelves and stacks, areas containing highly flammable and explosive vapors, ignitable flyings or fibres. Includes recommendations for both fluorescent and incandescent lighting of these and other areas. 32 pages. Benjamin Electric Mfg. Co.

21. **INDUSTRIAL WIRING** —What the prospective purchaser should know about adequate wiring in industrial plants. Contains simple explanation of an adequate wiring system; the four interrelated parts of a good system; important requirements from a system including efficiency, safety, reliability, flexibility and growth without trouble and expense. General Electric Co.

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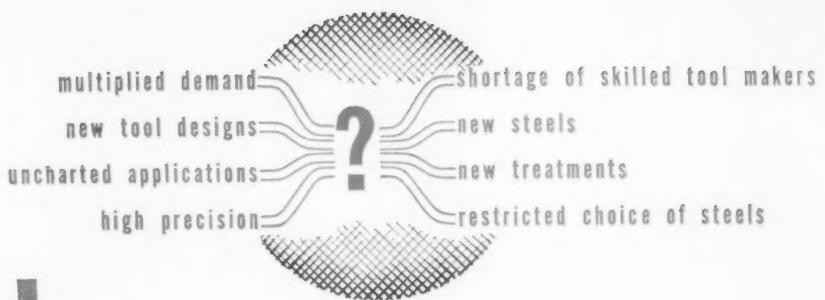
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Aid on wartime tool steel problems

Top speed war production demands TOOLS — *more* tools than dreamed of in peace time — *new kinds* of tools for new war time jobs. The tool industry is tackling this tremendous task short of skilled tool makers and restricted by shortages in their choice of steels.

Solutions to these new problems are being worked out every day by the tool industry. Frankly, we don't have all the answers but our contacts with American tool makers determined to win this war puts us in a position to assist you in finding solutions to some of the particular problems that may be facing you.

On your problems of steel selection and treatment of tool steels, we would be very glad to have you get in touch with us. For your convenience, we are listing below the addresses of our district offices.

COPPERWELD STEEL COMPANY · WARREN, OHIO



BUFFALO	1127 Liberty Bank Building	Washington 7283
CHICAGO	122 S. Michigan Avenue	Harrison 1411
CLEVELAND	1158 Union Commerce Building	Cherry 1326
DETROIT	7-251 General Motors Building	Trinity 1-1760
NEW YORK	117 Liberty Street	Cortlandt 7-8314



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22. SHEET LIFTER—A machine for lifting and carrying sheet steel or other hard to handle material with a maximum of safety for men and load is presented in an 8-page bulletin. Action-photographs of the lifters show a wide variety of applications. Capacities, 2 to 60 tons. Cullen-Friestedt Co.

23. BELTS—Designed for special purposes, to operate in oil conditions, to release static electricity, to operate at high speeds and in special industries, these belts offer a variety of applications. Comparison tables and handy formulas are included in the catalog. L. H. Gilmer Company.

24. BELTS—Several pages of formulae and tables as well as suggestions for installation and maintenance accompany the description of the special features of VIM belts. E. F. Houghton & Co.

25. BELTS—Cross reference charts, enabling comparisons with other makes, are an important feature accompanying the descriptions of and horsepower tables for fractional horsepower V belts. Goodyear Tire and Rubber Co., Inc.

26. LIFT TRUCKS—A new line of tilting fork type trucks, both telescopic and non-telescopic, available in both gas-powered and electric-powered models, are announced in two 8-page bulletins. Low-

slung and with low gravity center, the trucks handle loads up to 3,000 lbs. Lewis-Shepard Sales Corporation.

27. BELT LACINGS—Belt lacing machines, lacings, hooks, and connecting pins are listed separately in small brochures. A duplicated instruction paper offers belt lacing hints. Clipper Belt Lacer Co.

28. PLASTICS—A non-technical discussion of phenolic plastics and resins, from raw materials to finished product, is contained in an 8-page booklet which, in addition to the information its pages contain, suggests where additional helpful material can be found. Durez Plastics & Chemicals, Inc.

29. PLYWOOD—Two new loose-leaf handbooks have been made available on the subject of plywood and its uses. One is "Technical Data on Plywood"; the other "Industrial Uses of Plywood." The handbooks will be followed by supplements as new information is developed. Douglas Fir Plywood Association.

30. ELECTRIC HOISTS—A wire rope, push button controlled electric hoists, in capacities up to 2,000 lbs, is described in a small circular accompanied by a sheet facilitating inquiries, on which the inquirer can tabulate the working requirements to be met in his shop. Harnischfeger Corporation.

31. STANDARD STEELS—On a single chart 14" x 22", hinged for folding to 11" x 14" for desk drawer, are tabulated the chemical composition limits of AISI, SAE and NE (National Emergency) Standard Steels, with nearest aeronautical material specifications included. Tabular matter is printed in 4 colors for rapid identification. The American Steel & Wire Co.

32. TERPENE SOLVENTS—In a 21-page book is presented an up-to-the-moment analysis and review of the technical data on the characteristics and uses of terpene thinners and solvents, not only in paint and varnish formulas but for a wide variety of solvents for special purposes. Hercules Powder Co.

33. LATHES—A newly-printed 48-page catalog describes a diversified line of engine lathes, toolroom lathes and turret lathes, together with attachments and accessories for special work. The specifications are tabulated for easy comparison in arriving at a selection. South Bend Lathe Works.

34. LOCKER RACKS—A single-sheet bulletin provides detailed information in regard to a floor-saving design of combination lockers-and-racks and of shop wardrobe racks, made of all-wood construction of hardwood and plywood material. Vogel-Peterson Co.

35. RESISTANCE WELDING CONTROL—A 38-page book gives a simplified explanation of electronic control for resistance welding—what it is; what it does; and how it is applied—together with engineering and application data. Westinghouse Electric & Mfg. Co.

36. OILSTONE FILES—A small price-circular illustrates the shapes and sizes of files available in this line of clundum abrasive and Arkansas oilstone files. Norton Co.

37. AIR EXPRESS ESTIMATOR—A pocket-size device consisting of a slotted cover and sliding interior panel furnishes a speedy method of arriving at the cost of an air express shipment. An air-route map on reverse enables the user to determine

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155 MM shell casings ready for loading. Close tolerances, high finish, *big output* . . . are being assured by the use of *Texaco Lubricants and Cutting Coolants*.

AMERICAN INDUSTRY is saying it with shells! Already, its unprecedented mass production of shells and other war weapons spells *Victory* for the United Nations.

In keeping vital production machinery on the job at or above its rated capacity, war plants the country over are getting tremendous help from the use of the proper Texaco Lubricants.

Outstanding performance has made Texaco preferred in the fields listed in the panel.

Trained Texaco Engineers offer you the full benefit of their lubrication "know-how." They will gladly cooperate both in increasing output and in reducing down-time for repairs and replacements.

For this service phone the nearest of more than 2300 distributing points in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

THEY PREFER TEXACO

- ★ More locomotives and cars in the U. S. are lubricated with Texaco than with any other brand.
- ★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.
- ★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.
- ★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.
- ★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.



TEXACO Lubricants and Fuels FOR ALL INDUSTRIES

Tune in Fred Allen every Sunday night—CBS ★ Help win the war by returning empty drums promptly
When writing The Texas Company please mention Purchasing

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the proper distance to be figured. Reference to another section of the sliding panel gives the user approximate flying time. Railway Express Agency.

38. ABRASIVES—This 20-page book, 5" x 7" in size, entitled "How To Use Truing & Dressing Tools for Better Grinding," is a thorough-going manual of proper procedures, liberally illustrated with photographs and drawings. Norton Co.

39. LAMINATING PLASTICS—Profusely illustrated by photographs, this 24-page book covers the various types of laminating plastics available and their essential uses in the electrical, automotive, aircraft and chemical industries. Bakelite Corporation.

40. POWER TRANSMISSION—Contained in the booklet are drawings and dimensions of shafts, pulleys, couplings, bearings, and mountings. Also listed are drills and presses. Royersford Foundry and Machine Co., Inc.

41. FLUORESCENT LIGHTING—A 36-page booklet in non-technical language intended to provide a concise description and explanation of fluorescent lamps and their application in industrial lighting. Covers types of fixtures, design, supplementary lighting and a section devoted to questions and answers intended to provide all ordinary facts about fluorescent illumination. Westinghouse Electric & Mfg. Co.

42. LACQUER FINISHES—In loose-leaf form have been collected the thirty-odd "United States Government Specification Finishes" as used in the production of war equipment. New sheets and corrected sheets will be forwarded as changes occur. To secure a copy, send request on company letterhead to Dept. P., The Egyptian Lacquer Mfg. Co.

43. LIQUID DENSITY RECORDERS—In this 8-page bulletin, just off the press, the arguments for having a continuous record of the density of a flowing liquid, in place of periodic hydrometer readings, are first presented and instruments for both measuring and controlling density are then explained and illustrated. Emphasis is given to the statement that accuracy of the measurements is not affected by turbulence, viscosity or foam. The Foxboro Company.

44. SINTERED CARBIDE TOOLS—A 12-page catalog folder describing and picturing a line of general purpose tools available in ten styles, each in four to ten sizes, and in four specifications of tip for differing types of usage. The standard designs, the bulletin states, are quickly modified by simple grinding to suit special needs. Tips, partly finished tools and special tools are also offered. The prices per tool quoted in the bulletin apply to all quantities, whether large or small. Firth-Sterling Steel Co.

45. TRUCK CASTERS—A line of casters with load capacities ranging from 325 lbs. to 1500 lbs. is described and illustrated in both drawings and photographs in a 4-page, letter-size bulletin. Two types of heavy duty casters are offered, swivel and rigid, with semi-steel roller bearing wheels or rubber-tired roller-bearing wheels (the tread vulcanized to a steel core) and a medium duty series of the swivel type. Faultless Caster Corporation.

46. HOISTING EQUIPMENT—A diversified range of hoisting equipment and related accessories, including ratchet lever, electric, spur gear chain, and differential chain hoists, I-beam trolleys, safety load binders and maintenance tools, are pictured and described in an 8-page, letter-size catalog, plentifully illustrated with both catalog-style and action photographs. Temporary cross arms, temporary guy clamps, transformer gins and power pike poles are also shown. Coffing-Hoist Co.

47. CUTTING OIL CLARIFYING SYSTEM—Equipment for the continuous circulating, intercepting and clarifying of cutting oils and coolants in order to safeguard and get maximum efficiency from machine tools by assuring a steady supply of clean oils is described in a 4-page bulletin well packed with condensed information. Capacity of the system, which operates on gravity with no moving parts, is from 5 gpm to 15,000 gpm. A list of 24 well-known users is given on the back cover of the bulletin. Gale Oil Separator Co.

48. FIRE EXTINGUISHER GUIDE—A poster which shows pictorially and explains verbally when and how to use four types of fire extinguishers—carbon dioxide hand type and wheel type, water and foam, and vaporizing liquid—is offered without charge to manufacturing and industrial plants by a maker of extinguishing and inflation devices. Particular purpose of the folder, which is printed in red and black, is to enable even inexperienced workers to know what to do in an emergency and hence is especially timely in a period when so many novices are on factory payrolls. Walter Kidde & Co.

PURCHASING

205 EAST 42ND ST., NEW YORK, N. Y.

Please send me the "Know-How" Information checked.

38 39 40 41 42 43 44
45 46 47 48

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

11/42

SKILSAW TOOLS

HELP AIRCRAFT PRODUCTION

HIT A NEW HIGH!

SKILSAW BLOWER Operated at 130° for drying
glued joints hard and fast IN ANY WEATHER!



SKILSAW speeds cutting of crating lumber. Saves
time opening crates. Protects contents and sal-
vages materials for other uses.



SKILSAW BENCH GRINDERS . . .
spotted through plant to provide
quick sharpening of bits, tools, twist
drills and for grinding small parts.

SKILSAW PORTABLE ELECTRIC **TOOLS**
★ MAKE AMERICA'S HANDS MORE PRODUCTIVE ★

SKILSAW DISC SANDERS for
all metal cleaning, filing, wire brush-
ing, weld grinding and polishing.

SKILSAW BELT SANDERS sand
faster on wood planes and in wood
pattern shops of metal plane plants.



When America's aircraft industry started to zoom it started adding SKILSAW TOOLS in quantity . . . to speed up countless operations . . . to get more work done on every shift . . . to build *far faster* the planes that are flying to Victory! Today those SKILSAW TOOLS (and thousands more) are helping production SOAR to heights undreamed of only a year ago.

Are there jobs in your shop that should be done quicker? Talk to your distributor about the big complete line of SKILSAW TOOLS. He can tell you what models will help you most . . . and he'll gladly prove it with a demonstration on your own work.

SKILSAW, INC., 4761 Winnemac Ave., Chicago, Ill.

New York • Boston • Buffalo • Philadelphia • Cleveland • Detroit
Indianapolis • St. Louis • Kansas City • Atlanta • New Orleans • Dallas
Los Angeles • Oakland • Portland • Seattle • Toronto, Canada



"..information of aid and comfort to the enemy"

THE censor's stamp is, today, a badge of honor. The necessity of withholding information concerning a product implies its importance to the war effort.

How and where this censored new product is going to be used might be of particular interest to an Axis engineer in some far distant plant. It and many another, which cannot be described for the time being, were created by Richardson Plasticians for the sole purpose of speeding up the production of better, more effective equipment, in bigger quantities for the

armed forces of the United Nations.

The use of INSUROK Precision Plastics and the many suggestions of Richardson Plasticians have helped war products producers save time and increase output. If the use of molded or laminated plastics might solve one of your problems, write us. We'll be glad to give you the benefit of our experience.

The Richardson Company, Melrose Park, Ill.; Lockland, Ohio; New Brunswick, N. J.; Indianapolis, Ind. Sales Offices: 75 West St., New York City; G. M. Building, Detroit.

INSUROK and the experience of Richardson Plasticians are helping war products producers by:

1. Increasing output per machine-hour.
- ✓ 2. Shortening time from blueprint to production.
3. Facilitating sub-contracting.
4. Saving other critical materials for other important jobs.
5. Providing greater latitude for designers.
6. Doing things that "can't be done."
7. Aiding in improved machine and product performance.

INSUROK

When writing The Richardson Company please mention Purchasing

DOUBLE THE LIFE OF YOUR...

WALWORTH REGRINDING SWING CHECK VALVES (Nos. 420 and 428)

The useful life of a bronze swing check valve can often be doubled or even trebled by regrinding. A small scratch on the seat or disc may develop quickly into a deep fissure that no amount of regrinding

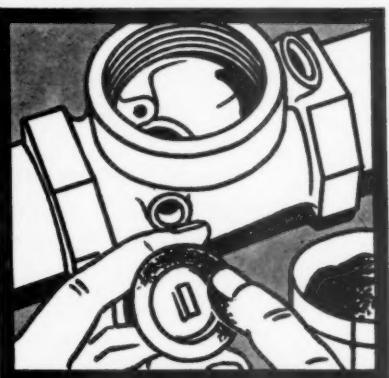
can remove — therefore, do not put off regrinding.

Walworth Regrinding Swing Check Valves Nos. 420 and 428 are designed to be re-ground without removing the valve body from the pipeline. Here's how:



A century ago Walworth first manufactured valves and fittings. Walworth has been manufacturing valves and fittings continuously ever since.

1 Shut off flow through pipe so that section being worked on is empty. (A) Remove the cap from the top of the valve and (B) remove stop plug on the downstream end of the valve; (C) remove plug on side of body and pull out hinge pin; (D) remove disc.



Replace disc and put screw driver through stop plug hole. A screw driver fits into slot top of disc stud. Oscillate disc pitted surfaces are ground smooth.



2 Apply grinding compound to disc and seat with finger. It is recommended that a grinding compound with an emery base be used.



3 Remove disc and wipe seat and disc with cloth dipped in gasoline — be sure all grinding compound is removed; then reassemble. Your valve is ready for additional useful service.

WALWORTH

WALWORTH COMPANY
60 EAST 42nd STREET, NEW YORK

VALVES
FITTINGS
and TOOLS
Backed by 100
Years' Service

DISTRIBUTORS IN PRINCIPAL
CENTERS THROUGHOUT THE WORLD



LET US HELP YOU

The simple, sure way to avoid confusion, delays and rejects is to standardize on EGYPTIAN FINISHES developed to meet the requirements of Government specifications. Years before Pearl Harbor our chemists were making EGYPTIAN FINISHES to meet Government specifications. Our years of experience in this work have particularly fitted us to help you today. You can depend on EGYPTIAN to give you the finish that Uncle Sam wants.

SERVICE STILL COUNTS

Service has been the keynote of our business for half a century. In spite of present unprecedented manufacturing difficulties you can rely on us to fill your order accurately and promptly, whether you are an old or new customer. Get in step with EGYPTIAN and you'll keep in step with Uncle Sam.



EGYPTIAN

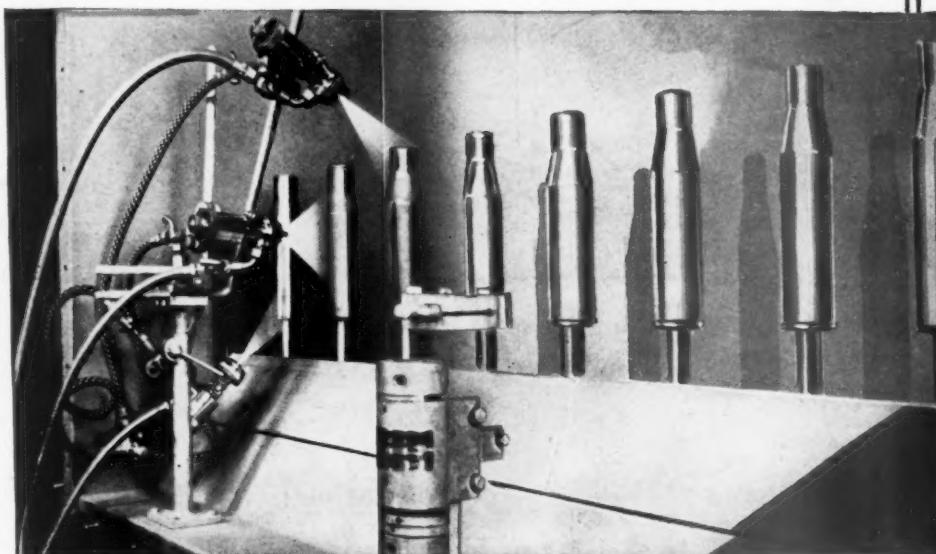
Superior FINISHES

When writing The Egyptian Lacquer Manufacturing Co. please mention Purchasing

For Example: - take AXS-736

EGYPTIAN Clear Finish For STEEL Cartridge Cases

- Here is a highly specialized finish for dip or spray application followed by a ten minute bake at 350° F.
- Retards corrosion or reaction between the casing and propellant material.
- For use on both exterior and interior of cartridge cases.
- A material which meets all the requirements of Specification AXS-736.



SEND FOR THIS "SPEC" BOOK

The second edition of our loose-leaf book "United States Government Specification Finishes" is just off the press. It contains information concerning specifications for the more important finishes used on equipment for all branches of the service.

An EGYPTIAN FINISH is now available for a wide range of war products. Sheets containing new and revised specifications are sent out as such changes occur. Write today on business letterhead for your copy of this invaluable purchasing guide.

Just ask for Government "Spec" Book P-11

THE EGYPTIAN LACQUER MANUFACTURING CO.
Rockefeller Center

New York

These are a few of the more important Government "Specs" which we can furnish. For more complete list send for "Spec." book.

ES-680
SYNTHETIC TYPE
PROTECTIVE COATING
★ AXS-736
CLEAR FINISH
FOR STEEL CARTRIDGE CASES
AXS-680
LUSTRELESS LACQUER ENAMEL
FOR AMMUNITION
AXS-684
TYPE I and II
LUSTRELESS PAINT FOR AMMUNITION
3-162-A
NITROCELLULOSE LACQUER ENAMEL
FOR AMMUNITION
P-27-b-2
ZINC CHROMATE PRIMER
84
ZINC CHROMATE PRIMER
AN-TT-P-656
ZINC CHROMATE PRIMER
PXS-979
LACQUER ENAMEL FOR AMMUNITION
(CELLULOSE TYPE)



EGYPTIAN

Superior FINISHES

When writing The Egyptian Lacquer Manufacturing Co. please mention Purchasing

Looking ahead with Asbestos



**PACKINGS IN TOMORROW'S
MACHINES WILL CONTINUE
TO BE ASBESTOS-BASED**

No matter how clever the machines of Tomorrow become, if their duties require them to combat steam, oil, water, acids or gas, K&M Asbestos Packings will be relied on to make them leak-proof.

For even now, in hundreds of industrial fields, K&M Packings—asbestos in combination with other proven materials—are making machines and valves oil-tight, water-tight, steam-tight, as the

case requires. And lastingly trouble-free!

For the duration, K&M Packings will be urgently needed by industries producing directly for war. But, after the peace, they will be freely available again, along with many new products resulting from K&M's continued research in asbestos.

* * *
*Nature made asbestos;
 Keasbey & Mattison, America's asbestos pioneer,
 has made it serve mankind . . . since 1873.*

KEASBEY & MATTISON
 COMPANY, AMBLER, PENNSYLVANIA

Makers of

asbestos-cement shingles and wallboards; asbestos and magnesia insulations for pipes, boilers, furnaces; asbestos textiles; asbestos electrical materials; asbestos paper and millboard; asbestos marine insulations; asbestos acoustical material; asbestos packings; asbestos corrugated sheathing and flat lumbers; asbestos-cement pipe for water mains

When writing Keasbey & Mattison Company please mention Purchasing



Tune in on

FIRTHITE

SINTERED CARBIDES

for Complete Shop Tooling



MODERN
MATERIALS
FOR COMPLETE
SHOP
TOOLING

Firth-Sterling
STEEL COMPANY

OFFICES: MCKEESPORT, PA. NEW YORK HARTFORD LOS ANGELES CLEVELAND
CHICAGO PHILADELPHIA DAYTON DETROIT

Made under one or more
of the following patents
on TITANIUM Carbides:
2,246,387; 2,265,010;
Re 22,073; Re 22,166.



H. R. Decker (left), electrical contractor and engineer, Glens Falls, N. Y., is here going over plans to determine wiring materials necessary for rush wiring job assisted by E. S. Peart, vice president and sales manager of the Glens Falls Electric Supply Co., G-E distributor, Glens Falls, N. Y.



Wiring materials are here being selected at the Gee Electric Co., Wheeling, W. Va., G-E distributor for a rush war job. Left to right are R. M. DeWolf, purchasing agent; Val. Fraselli, counter salesman; Ben Abercrombie, 24 years' service; Hubert Dunlap, stockman.

Sven Perman, shipping room manager, Southern Tier Electrical Supply Company, Binghamton, N. Y., G-E distributor, is shown packing urgently needed wiring materials for a rush job. Mr. Perman is noted for remembering things—not only day-to-day transactions, but stock carried and business done during years past.



When writing General Electric Company please mention Purchasing

G-E WIRING MATERIALS DISTRIBUTORS OFFER SUPPLIES FOR Wartime Wiring Efficiency

Avoid delays caused by electrical breakdowns. The G-E Wiring Materials Distributor near you can provide wiring supplies—for new wiring systems, for wiring system conversion or for wiring system maintenance—that will give dependable service. These wiring materials are all high quality.

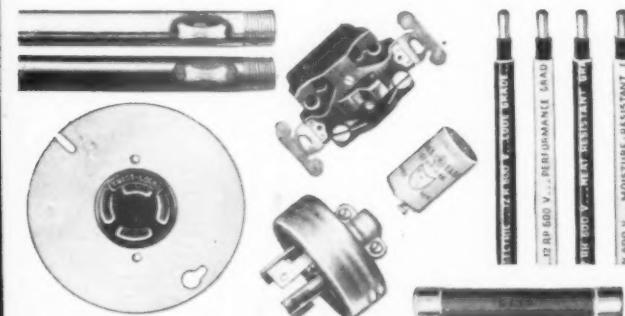
G-E Wiring Materials Distributors handle 5 different conduits, 5 different types of building wire and hundreds of wiring devices and boxes and fittings all made by one manufacturer. The wide variety and durability of these wiring materials make them ideal to use in war projects.

Moreover, G-E Wiring Materials Distributors will be glad to help you in many ways in addition to supplying materials. They will help select materials suitable for your purposes . . . help plan wiring . . . give priority advice . . . make suggestions on protective wiring. Take advantage of these services. See your G-E Wiring Materials Distributor.

GENERAL ELECTRIC

G-E WIRING MATERIALS

For complete information on G-E conduit, wire and cable and wiring devices suited to your needs, see the G-E Wiring Materials Distributor near you. Appliance and Merchandise Dept., General Electric Co., Bridgeport, Conn.



Clark Gilbert, city salesman, Crescent Electric Supply Co., Madison, Wis., is here advising customer of materials immediately available for special rush wiring job at war project.





The BIG JOB

FOR Formica, as for many other companies, the essential task right now is to supply the front with war materials. Everything we have is going into that and it will continue to be our big job for the duration.

But so far we have been able to care for many users of building and furniture sheet, electrical insulation, chemically resistant parts and many other plastic laminated products—and we will continue to do so as long as we are able—to help war-essential civilian activities to continue here at home.

THE FORMICA INSULATION COMPANY

4665 SPRING GROVE AVENUE, CINCINNATI, OHIO





**THERE IS
A WHEEL THAT WILL**
Give us more guns, planes, tanks

It is one of many thousands of combinations — not easy to find.

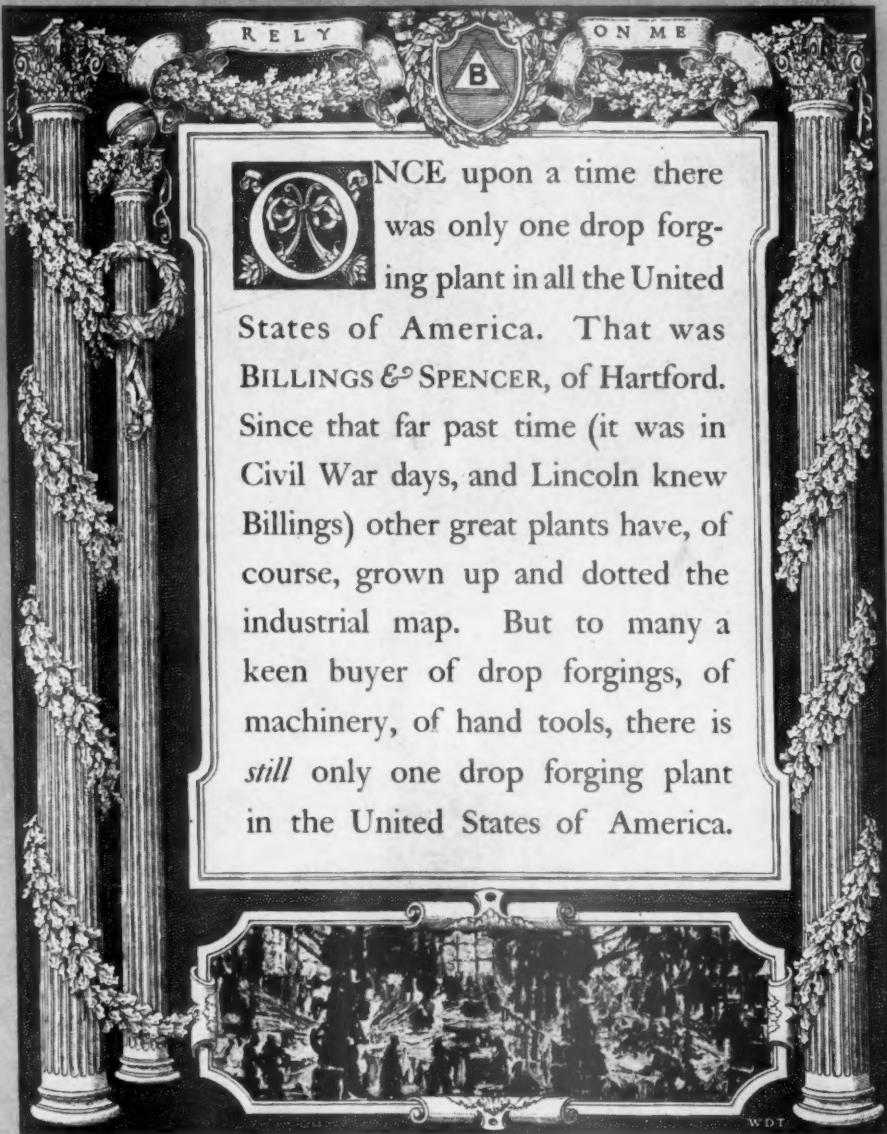
That's what Abrasive Engineers are for — Norton abrasive engineers — Norton distributors' field men.

If you are turning out parts by mass production methods, you owe it to your business to study the grinding operations. Even a few seconds saved per piece means more guns, planes, tanks.



NORTON ABRASIVES

NORTON COMPANY, WORCESTER, MASS.
BEHR-MANNING DIVISION, TROY, N. Y.

REPRODUCTION OF A FULL PAGE ADVERTISEMENT USED
YEARS AGO IN A PROMINENT NATIONAL MAGAZINE

Billings always have been good!

FORGED Billings TOOLS



When writing The Billings & Spencer Co. please mention Purchasing

IMPROVED



It's WESTINGHOUSE for better light at lower cost

When writing Westinghouse Electric & Mfg. Co. please mention Purchasing

in all 3!

1. Brightness

Through intensive research ever since fluorescent lamps were first introduced, Westinghouse has increased lamp brightness. This more-light-for-your-money advantage has been accomplished in many ways, for example: by making fluorescent powders which glow more brilliantly; by rigidly controlling thickness of the powder coating; by making lamps stay bright from end to end.



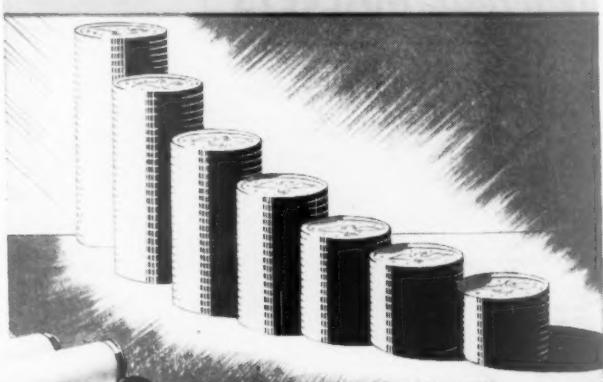
2. Long Life

Today's Westinghouse Mazda Fluorescent Lamps have a rated average of 2500 hours, or 1000 hours longer than the fluorescent lamps of four years ago. Westinghouse research achieved this advantage by many new developments, including improved electrode design; better control of gas pressure inside the lamp; and by perfecting the method and machines which insert the mercury into the lamp.

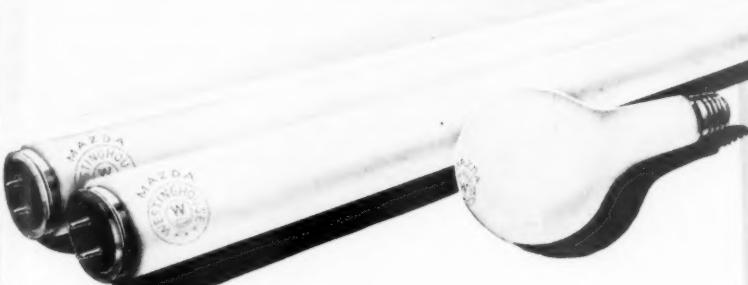


3. Low Cost

While many Westinghouse technicians were improving lamp quality, others were developing highly accurate mass production machinery to reduce lamp prices. As a result, Westinghouse Mazda Fluorescent Lamps are precision built to the most exacting limits, and now sell at the lowest prices in history. A 40-Watt Westinghouse lamp that formerly listed for \$2.80 now lists for only 95 cents!



**Westinghouse
MAZDA LAMPS**



When writing Westinghouse Electric & Mfg. Co. please mention Purchasing



Rawhide

Mechanically tanned, such as is used in Chicago Rawhide Hammers and Mallets is the toughest and the most enduring of all. These fine tools in sizes from 2 ounces to 6 pounds are not only long-lasting but are made to strike thousands of blows accurately and safely without damaging surfaces or materials from delicate wire insulation to heavy duty yet precision made crankshafts.

These tools, in the size you need are sold by your local industrial distributor.



Rawhide HAMMERS



• Genuine Java Water Buffalo Hide replaceable faces in malleable head

Cat. No.	Diameter in inches	Weight in pounds
0	1	1/2
1	1 1/4	1 1/2
2	1 1/2	1 1/2
3	1 3/4	2 1/4
4	2	4
5	2 3/4	5 1/2

Rawhide MALLETS



• A finely balanced tool with tough, resilient Java Water Buffalo Rawhide heads

Not Loaded			
Cat. No.	Dia. Inches	Length Inches	Wt. Ozs.
0	1	2 1/4	2
1	1 1/4	3	3 1/2
2	1 1/2	3 1/4	6
3	1 3/4	3 1/4	7 1/2
4	2	3 1/4	10
5	2 3/4	4 1/4	21
6	2 3/4	4 1/4	23

Loaded			
Cat. No.	Dia. Inches	Length Inches	Wt. Ozs.
7	1 1/4	3	8
8	1 1/2	3 1/4	12
9	1 3/4	3 3/4	16
10	2	3 1/2	20
11	2 3/4	4 1/4	42

CHICAGO Rawhide MFG. CO.
1294 ELSTON AVE. ★ CHICAGO, ILLINOIS.

F.O.B. philosophy of buying

ACURRENT feature of most Association bulletins is the roster of purchasing men who are now actively in war service. Outstanding is the record of the Canadian Purchasing Agents Associations, which show no less than sixty-eight of their members serving the Dominion. The list includes twelve men in the Royal Canadian Air Force, eight in the Army, two in Ordnance, and one each in the Engineers, Artillery, Service Corps, Ambulance Brigade, and Officer Training Corps; fourteen are enrolled in Reserve Corps units, including three commanding officers; one is with the Royal Canadian Mounted Police; ten are in various governmental war agencies, including the Director General of the General Purchasing Branch, Department of Munitions and Supply; three are with the Wartime Salvage Commission; three in charge of purchasing at government munitions plants; and twelve hold positions of responsibility in the Civilian Defense organization.

THE trend of the times is clearly indicated in the curricula of our schools and colleges. The list of courses in purchasing is growing with every month. A recent announcement from the Business School of New York's City College lists a new course in Price Control Regulations, and the School of Household Administration, University of Cincinnati, announces a lecture course entitled, "The Responsibility of Women as Purchasing Agents for the Family."

WHAT with priorities giving way to allocation, and allocations supported by rather close scheduling on some of the more critical materials, the men in Washington who are responsible for maintaining a balanced production program see less and less virtue in "beating the promise," which was the acme of achievement only a few short months ago. One gentleman in WPB is quoted as advocating that the proud Army/Navy pennants which have been hoisted over plants which "beat the promise" should be hauled down, on the grounds that every plant operating ahead of schedule is using up materials needed more urgently elsewhere to keep the overall production picture in balance. The situation presents the counterpart of that old axiom of railroading, that there's one thing worse than having a train run behind schedule—and that's to have the train run ahead of schedule, leaving the customers on the platform.

TWO of our chief current interests—scrap metal and red tape—are combined in a recent feature story in the New York *Daily News*. An enterprising reporter from that journal, acting on the slogan that "Scrap is where you find it," took his camera to the deserted grounds of the World's Fair and came back with a full page of photographs of a veritable mine of potential scrap—four floodlight towers at the empty parking space, steel ramps and railings leading to the main entrances, rows of steel ticket booths, the steel and chromium tower of the Polish Building (there was a Poland then), ornamental towers with sturdy steel frameworks under their crumbling sheathing, and divers other metal structures that would go a long way toward feeding the hungry furnaces. But having unearthed all this material and setting about to write his story, he was forced to this melancholy conclusion: "Plenty of scrap around town, but much of it is tied down with Red Tape."

THE historian of this World War will find plenty of detailed information in the documents which Col. Redtape is accumulating. He will learn, for example, that on September 1st, at 2:35 P. M., prevailing weather conditions at the Pine Bluff (Ark.) Arsenal were fair, barometer at 29.0 and temperature 64 degrees. This enlightening data comes from the receiving report on a parcel post shipment of 24 free booklets on grinding wheel prac-

tic sent by a manufacturer at the request of an operating man at the arsenal. In due course this receiving report (Sheet 1 of 1) went to the invoice clerk, and six days later the materials auditor sent a questionnaire in triplicate to the manufacturer, demanding the Purchase Request number and the Purchase Order number, neither of which existed. It also asked: "If you are the shipper and not the vendor, as designated on the Purchase Order, please list below the name of the vendor. If you are the vendor and not the shipper, please list below the name of the shipper." An addressed envelope was enclosed for the return of the questionnaire, receiving report, copy of delivery ticket or freight and express receipt, showing name of person receiving material at the project and/or the transportation company, and copy of the invoice. The manufacturer was assured that observance of shipping instructions on future deliveries would facilitate approval of the invoice for payment. (There was no invoice.) Enclosed was another sheet, patriotically printed in red and blue, headed "You Can Help Speed War Work." It set forth the following requirements: Original and five copies of the invoice to the U. S. Area Engineer, attention Chief Project Auditor; three copies of separate bills of lading; three copies of itemized shipping memo enclosed in each package; and Purchase Order number marked on exterior of each package and on all tallies and memos. The manufacturer was reminded that "The Allies Will Cooperate—The Axis Will Not." It is to be hoped that while all this was going on, the man in the shop got his grinding wheel booklets. That point is not clear from the record.

IT was pretty generally accepted at the May convention of N.A.-P.A. that the 1943 meeting will present a much different picture than previous gatherings. Now comes news that one of the annual features will definitely be missing. Fred E. Cooper of Tulsa, who has flown to these meetings for several years past with "Cos" of the Tulsa Association as his private passenger, has turned over to the government his 450-hp. Howard plane. F.O.B. has a sentimental interest in this announcement, for Fred was at the controls the first time we took to the air. It is strange to think of this Tulsa pair as being earthbound, but Uncle Sam very properly has a priority and the plane roars on to do a bigger job.



HOW can time be saved? How can we make the best use of our raw materials now so urgently needed for so many purposes?

With Wire Rope, the answer is in using the quality, construction and type that can be installed the quickest . . . that will deliver the most hours of work per pound of steel.

You can depend on Preformed "HERCULES" (Red-Strand) Wire Rope for

maximum efficiency. As it is easier to handle, it can be installed quicker. In addition to saving time, its longer service saves steel for other vital uses.

As Preformed "HERCULES" is furnished in both Round and Flattened Strand constructions, there is, in this one grade, a right rope for every heavy duty purpose. You will like its smooth spooling . . . its stamina . . . its dependability.

In order to help all wire rope users obtain maximum service from their wire rope, we publish an illustrated booklet "Practical Information on the Use and Care of Wire Rope". We would be glad to send a complimentary copy to anyone interested.

A. LESCHEN & SONS ROPE CO.
WIRE ROPE MAKERS
5909 KENNERLY AVENUE
ST. LOUIS, MISSOURI, U. S. A.
ESTABLISHED 1857

NEW YORK 90 West Street
CHICAGO 810 W. Washington Blvd.
DENVER 1534 Wazee Street

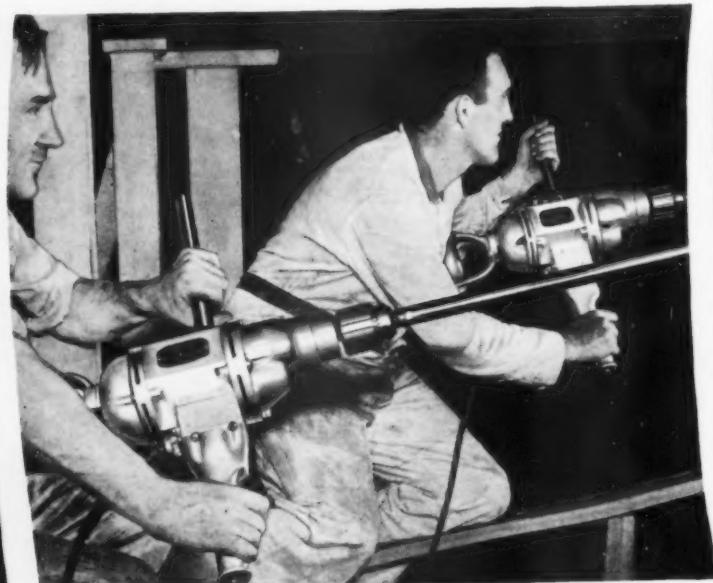


SAN FRANCISCO 520 Fourth Street
PORTLAND 914 N. W. 14th Avenue
SEATTLE 3410 First Avenue South

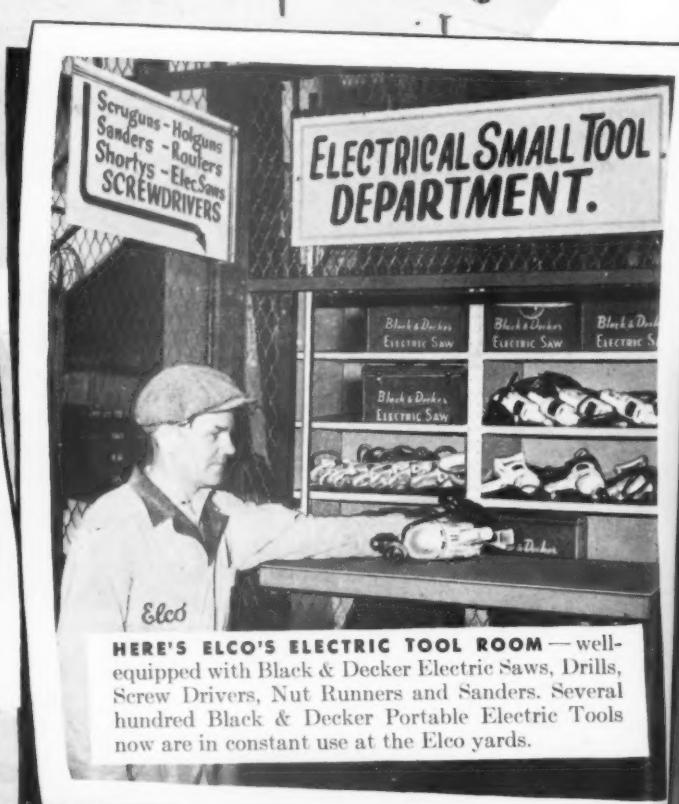
How a Black & Decker Distributor helped Elco build



HOLGUN and SCRUGUN—a perfect production team in the hands of skilled Elco builders; used for drilling, countersinking and screw driving operations—repeated thousands of times over the surface of each PT Boat.

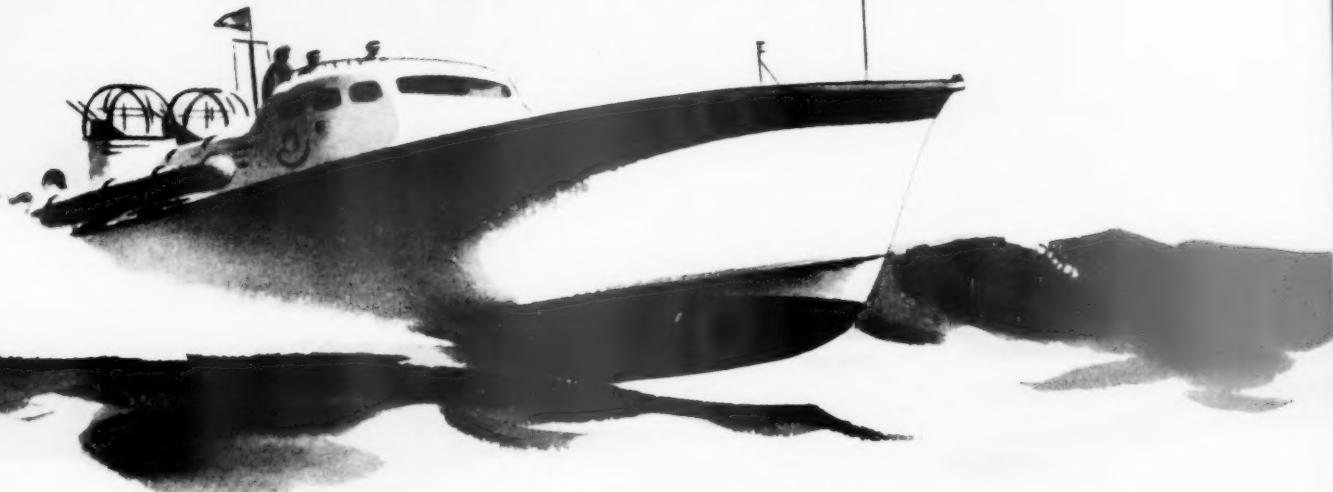


HERE'S AN UNUSUAL DRILLING OPERATION on the frame of a PT Boat, details of which we can't disclose. But whatever the operation, Black & Decker Heavy Duty Drills provide plenty of power for fast, accurate, continuous production work.



HERE'S ELCO'S ELECTRIC TOOL ROOM—well-equipped with Black & Decker Electric Saws, Drills, Screw Drivers, Nut Runners and Sanders. Several hundred Black & Decker Portable Electric Tools now are in constant use at the Elco yards.

P.T.'S Faster!



WHEN the Electric Boat Company got a Navy contract for Patrol Torpedo Boats, they needed tooling advice quickly! They called in George Carstens, Sales Engineer for Topping Bros., a Black & Decker Distributor. Mr. Carstens had been "on the job" with Elco, knew Elco's operations, had helped Elco solve tooling problems before.

Mr. Carstens worked closely with J. A. Guttridge, Elco's Shop Foreman, in developing the tooling program for mass production of PT's: Black & Decker Electric Saws for ripping, notching and trimming; Heavy Duty Drills and Nut Runners for heavy wood boring and bolting in framing up;

Holguns and Scruguns for drilling lead holes, countersinking and screw driving; "Shortys" for wiring and control installations; Electric Sanders for smoothing the sleek hulls at top speed!

Because of this fine teamwork between boat builder and electric tool distributor, Elco is meeting "impossible" production schedules—rushing more and more Patrol Torpedo Boats into action. For advice on any tooling problem, and as a dependable, convenient source of supply, phone your nearby Black & Decker Distributor. Or write today, for further information, to: The Black & Decker Mfg. Co., 764 Pennsylvania Ave., Towson, Maryland.

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker
PORTABLE ELECTRIC TOOLS

TEAMWORK

J. A. Guttridge of Elco, and George Carstens here discuss changes in tool speeds which have helped Elco step up output and do better, more accurate work. Changing speeds of most Black & Decker Tools, Mr. Carstens explains, is a simple matter of changing gears.



BRASS AT WAR



for the armies
of the past



for the United Nations NOW

THROUGH the centuries, brass has moved up on the Active List of martial uses from the scale armor of the ancient days... to the brass cannon of the American Revolution... to the shells and cartridges of World Wars One and Two.

Now, brass is buckling into its greatest job... helping to build up the firepower of all United Nations fighting forces to an irresistible, ceaseless blast that will finally end in the long quiet of a victorious peace.

This is the fifth war in which Bristol Brass has helped to arm the Army and Navy of the United States. Today, brass from Bristol is roll-

ing out in ever-mounting quantities... rolled and drawn to closer limits of precision than ever before. So in plants all over the world, Bristol sheet, rod and wire are making it possible to reach and maintain higher levels of speed and quality in fabrication of war material... And Bristol will keep the brass rolling... *until the Axis stops rolling.*

Bristol Brass

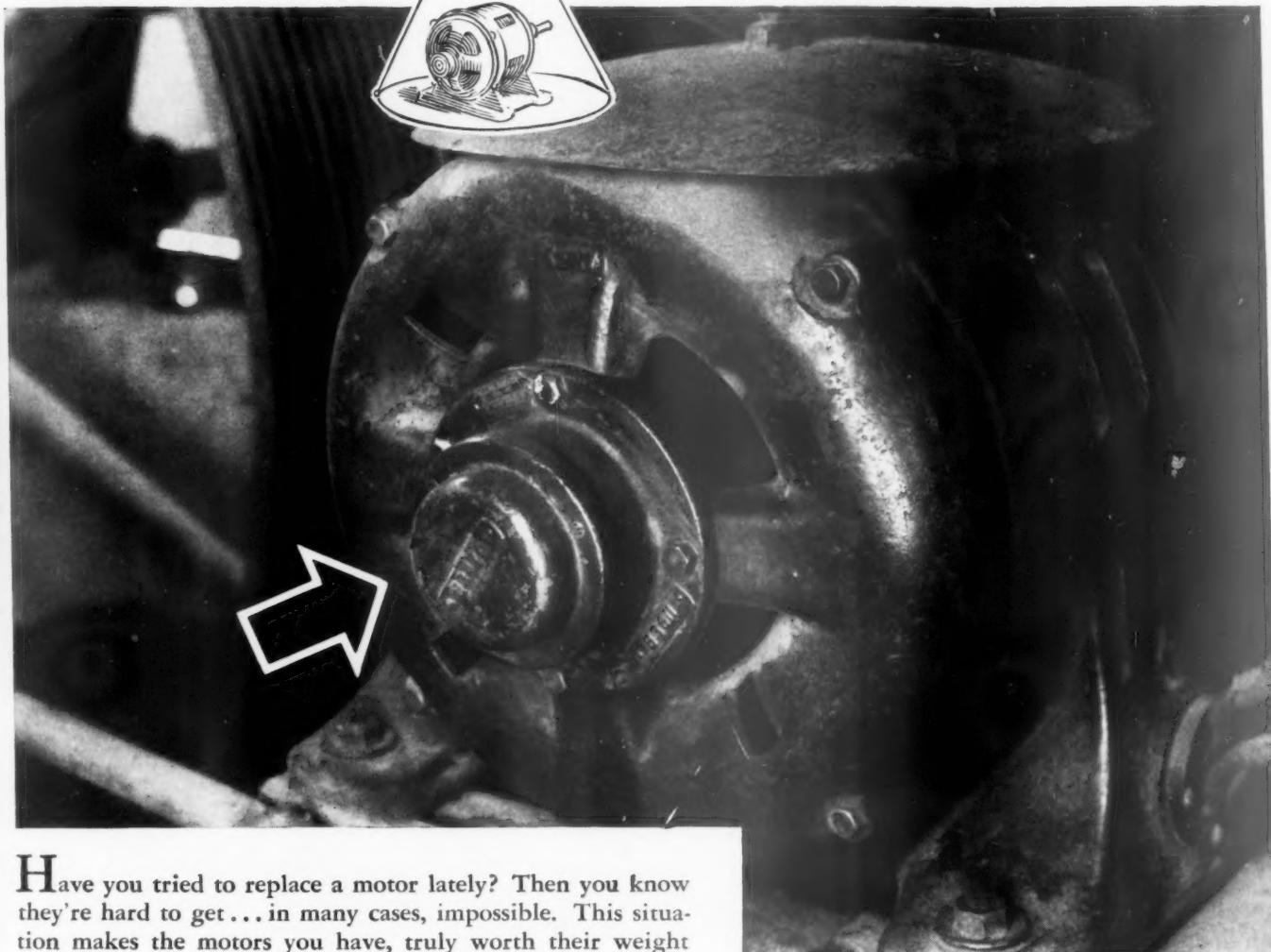
THE BRISTOL BRASS CORPORATION • BRISTOL, CONNECTICUT

Makers of Brass Since 1850

★ BUY WAR BONDS TO BUY BULLETS ★

When writing The Bristol Brass Corporation please mention Purchasing

DO YOU KNOW THE **Value** OF YOUR MOTORS?



Have you tried to replace a motor lately? Then you know they're hard to get... in many cases, impossible. This situation makes the motors you have, truly worth their weight in gold!

In the face of this difficulty, what patriotic steps are you taking to make your motors last longer? What are you doing to avoid trouble, to insure highest operating efficiency? What are you doing to conserve critical motors?

No matter what *else* you're doing... Fafnir Ball Bearing Motor Cartridges can help you do *more!* If you're losing time making bearing replacements, Fafnirs will solve your problem. Under all working conditions, flying sand, dirt, dust or moisture, friction-free Fafnirs will stay on the job longer. And with ordinary good care... indefinitely.

Fafnir Motor Cartridges are on the job in many war-busy plants... cutting power costs, reducing motor maintenance and replacement time and costs, and helping to boost needed production. They can be easily substituted for less efficient bearings now in use. A call to a nearby Fafnir distributor may be your best insurance for uninterrupted motor service. The Fafnir Bearing Company, New Britain, Connecticut.



FAFNIR BALL BEARINGS

THE BALANCED LINE—FOR
ORDNANCE, AIRCRAFT AND INDUSTRIAL MACHINERY

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How to make one power bit do the work of many



[and save you plenty]

THE useful life of Apex Phillips power bits is far from over when they have become worn in hard service. Here's why. You simply return them to us for reconditioning. Reconditioned bits are just as good as new ones, and the cost is a fraction of the price of new bits.

Many Apex customers save hundreds of dollars per month through this prompt, convenient service. Moreover, substantial amounts of vital tool

steel are saved by this method of reconditioning.

And don't forget this. Apex Phillips power bits are supplied for practically every type and make of power driver, for all sizes and types of Phillips screws. Made to rigid specifications from finest shock-resisting tool steel.

Write for the following Apex bulletins:

#15 on bits for Phillips screws ★ #16 on bits for slotted head screws ★ #17 on bits for clutch head screws

APEX

THE APEX MACHINE & TOOL CO., DAYTON, OHIO

Manufacturers of power bits for Phillips, slotted head, and clutch head screws; and hand tools for Phillips and clutch head screws.

When writing The Apex Machine & Tool Co. please mention Purchasing



Swifter Driving • Reduced Effort • Less Spoilage = 50% Less Assembly Time with Phillips Screws

It takes less time to get more done with Phillips Recessed Head Screws, and assembly workers don't wear out as the day progresses.

Phillips Screws permit one-hand starting and driving. The screw clings to the driver in almost any position — no fumbling — no slip-

ping — no crooked driving. One hand is always free to steady the work. And, with the slipping driver hazard eliminated, electric and pneumatic power drivers are more often practical.

That isn't all! Less fatigue . . . fewer accidents . . . better work —

even from inexperienced operators.

All this adds up to 50% savings — in time, which is so vital today — and cost, which will be a problem again tomorrow.

Any of the firms listed below will supply you.



PHILLIPS RECESSED HEAD SCREWS

GIVE YOU *2 for 1* (SPEED AT LOWER COST)

WOOD SCREWS • MACHINE SCREWS • SHEET METAL SCREWS • STOVE BOLTS • SPECIAL THREAD-CUTTING SCREWS • SCREWS WITH LOCK WASHERS

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Central Screw Co., Chicago, Ill.
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International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N. H.
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Parker-Kalon Corp., New York, N. Y.
Pawtucket Screw Co., Pawtucket, R. I.

Pheoli Manufacturing Co., Chicago, Ill.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
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Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
Whitney Screw Corp., Nashua, N. H.

How you can save on Diamond

Wheels!

TYPICAL COMPARATIVE DIAMOND WHEEL COSTS					
	Depth Diamond Section	Cost per Wheel	Number Wheels Required for Equal Service	Total Cost for Same Amount of Grinding Service	Saving Resulting from Using Thicker Section
TYPE D6W CUP WHEEL					
Diamond in Rim 6" x $\frac{3}{4}$ " — $\frac{3}{4}$ " Rim 100 Concentration	$\frac{1}{32}$ " $\frac{1}{8}$ "	\$63.55 184.65	4 1	\$254.20 184.65	\$69.55
Same Wheel 50 Concentration	$\frac{1}{16}$ " $\frac{1}{8}$ "	63.55 103.90	2 1	127.10 103.90	23.20
TYPE D1T STRAIGHT WHEEL					
Diamond in Periphery 6" x $\frac{1}{8}$ " 100 Concentration	$\frac{1}{16}$ " $\frac{1}{4}$ "	30.05 73.80	4 1	120.20 73.80	46.40

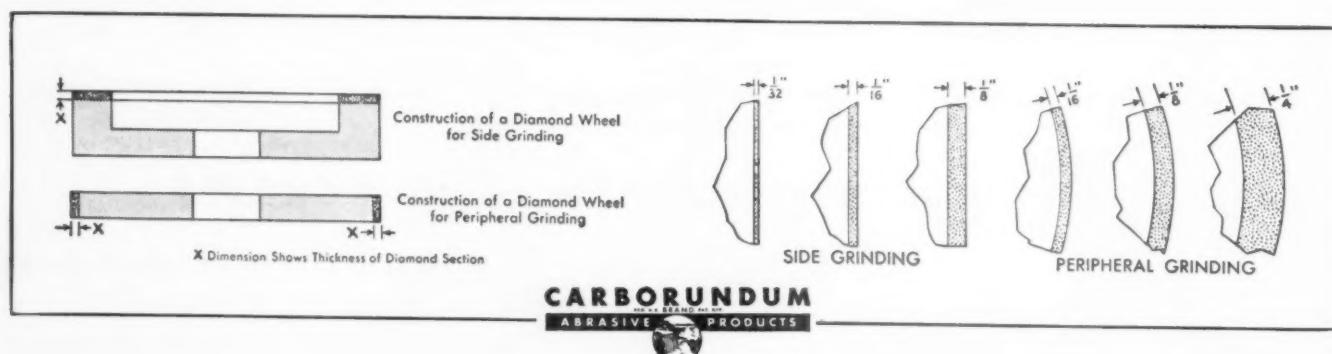


• The thickness of the diamond, or grinding, section of standard diamond wheels varies from $\frac{1}{32}$ to $\frac{1}{4}$ inch. Actually it is better economy to use the thicker sections wherever possible. A $\frac{1}{8}$ inch section, for instance, contains four times as many carats of diamonds as the thinnest section, and does four times the work. But the cost of one $\frac{1}{8}$ inch section is far less than its equivalent of four $\frac{1}{32}$ inch sections.

Why? Because in the first instance you pay for only *one* basic wheel shape, or "preform" and in the second you pay for four! Thus you save money by specifying the thicker diamond sections. The table above shows actual savings in a few typical cases.

By buying wheels with thicker diamond sections you save more than your *own* money. You also help conserve essential war materials and labor.

We urge you to take advantage of this saving, and thus also cooperate with us in conserving time and materials vital to our mutual war effort.



THE CARBORUNDUM COMPANY, NIAGARA FALLS, N. Y.

Sales Offices and Warehouses in New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, Pittsburgh, Cincinnati, Grand Rapids
(Carborundum is a registered trade-mark of and indicates manufacture by The Carborundum Company)

When writing The Carborundum Company please mention Purchasing



MIDWEST THE COMPLETE LINE OF Welding Fittings

MIDWEST PIPING & SUPPLY CO., Inc.

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Plants: St. Louis, Passaic (N. J.) and Los Angeles

Sales Offices: Chicago—949 Marquette Bldg. • Houston—229 Shell Bldg.
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Many users of welded piping are finding it advantageous to standardize upon Midwest Welding Fittings. Important among the reasons for this preference is the fact that only one source of supply is necessary to meet all their needs. . . . Midwest has the most complete line of welding fittings.

Midwest was the first manufacturer to recognize the need for many of the fittings illustrated here. Reducing Elbows, Saddles, Sleeves, "Long Tangent" Elbows and Shaped Nipples are among the fittings developed by Midwest and first offered to the trade by Midwest.

The design and method of manufacture of Midwest Welding Fittings offer the user definite advantages . . . such as exceptional dimensional accuracy. (See Bulletin WF-41 for details.)



WE'D LIKE TO GIMPHASIZE OUR SERVICE!

BUILDING good springs, exactly to your specifications, is what we're expected to do. Furthermore it's what we have always done and will continue to do—to uphold our reputation for quality. But today, the feature we'd like to stress is Accurate Service. It's not the ordinary kind of service you would expect from an ordinary source of supply; that isn't good enough, — today! The service we mean is the kind that's based on the complete cooperation of everyone here . . . in the office . . . in the plant . . . and in the field; not the "take-it-or-leave-it", "best-we-can-do" kind. It's the kind of service that gets things done for you — so you can do your job better and faster — so that we may more quickly return to building things that make life better — not worse.

Accurate service is for you, if you need springs and wire forms.

Get in the
Scrap
Now!

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Springs

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of Technical
Data on
Springs.
No obligation.

ACCURATE SPRING MFG. CO., 3825 W. Lake St., Chicago

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WHO KNOWS HOW TO PACK WAR MATERIALS?



WE DO.

Yes, we know how to pack war materials because we're packing many different war items every day. Hinde & Dauch has the experience, the talent, the ability, to design and manufacture corrugated boxes to meet the exacting specifications war products demand.

If you're making war materials for the armed services, turn your packaging problem over to H & D. There's no red tape, no guessing, no trial and error. We know how to pack war materials because we're packing them—hundreds of them. For fast service and complete information, write the factory nearest you.

*Send for "How To Pack It"—
the authoritative book on packing.*

A FEW OF THE WAR MATERIALS WE'RE PACKING TODAY

-
- Airplane Wing Tips
- Anti-Tank Mine Parts
- Army Cots
- Army Field Jackets
- Automatic Pilots
- Bayonets
- Binoculars
- Blankets
- Bullet-proof Gas Tanks
- Cartridge Cases
- Communication Systems
- Field Gun Yokes
- Field Rations
- Flare Fuses
- Floodlights
- Gas Mask Cans
- Gun Mounts
- Hand Grenades
- Hats and Caps
- Incendiary Bombs
- Machine Gun Reels
- Machine Gun Rings
- Mosquito Bars
- Nose Assemblies
- Practice Bombs
- Projectiles
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YOUR SCRAP
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AN ELECTRICAL WHOLESALER HELPS SPEED WAR PRODUCTION



WESCO skill helped tanks roll 58 days quicker

Special Heating Oven Designed, Wired and At Work for Tank Builder in 48 Hours

A Texas Army tank builder needed—double quick—an oven to heat-treat big Diesel Engine connecting rods—300 lbs. at a time. Standard type ovens were either too small or couldn't produce required temperatures. With oven manufacturers' best delivery 60 days, tank production faced a full stop; so the builder brought his problem to the local Wesco House.

Wesco quickly designed a special oven. In 36 hours the tank foundry had built the oven body; in 10 more hours, Wesco Service men had the job completely wired, units placed, thermostatic controls installed and properly calibrated for temperature. As a climax, with only 440 volts available, Wesco ingenuity wired 220-volt elements in series for 440-volt operation. Within 48 hours after the problem was given to Wesco the special oven was in service.

Saving 58 days of costly delay in tank production typifies scores of cases of unique Wesco Service—now devoted to Victory, later to speed peacetime business.

WESCO SPEEDS PRODUCTION

- * Within 19 days large quantities of various electrical supplies were delivered to a glider plant by Wesco—best complete delivery by manufacturers was 7 weeks.
- * Shipment of 55 miles of conduit for war plan started within 24 hours after Wesco got the order. Best delivery from any other source was 5 weeks to start.

WESCO SERVES BUSINESS

- * By warehousing stocks in anticipation of customers' needs.
- * By furnishing informative and technical data.
- * By providing trained sales and engineering personnel.

Westinghouse
ELECTRIC SUPPLY CO.

150 VARICK STREET • NEW YORK, N. Y.

*The name that means
W
everything in electricity*

A NATIONAL DISTRIBUTING ORGANIZATION WITH 80 BRANCHES

When writing Westinghouse Electric Supply Co. please mention Purchasing

PURCHASING PREVIEWS

From the Washington office of

PURCHASING

National Press Building
Washington, D. C.

November 2, 1942

For Purchasing Executives:

WPB RECAST IN NEW WAR ROLE—A war economy is insatiable. It eats continually further into the productive facilities of the nation. It is essentially an economy of heavy metals.

As these facts become increasingly evident, the entire War Production Board is being recast for a new role. At the inception of the NDAC, through OPM and SPAB, and finally to WPB, the problem was largely to preserve the civilian economy from disruption as a result of the "large" scale purchases of materials by "defense" industry. Personnel of the Government control agency was shot through with men from civilian industry—consumer goods—soft goods—merchandising. Legal talent and financial experts likewise were drawn from these civilian goods quarters.

On the surface it appears there is a general exodus of officials from WPB. There have been hints of industry politics—pulling of punches to favor a particular segment of industry. Some sources have attempted to flavor reputations of men who are leaving WPB.

Facts are quite different. The era for civilian industry men is over. Remnants of the goods industry men, the merchandisers, sellers, etc., will remain. But by and large a new slate will come into the picture. The reason is that war is a period of metals. Heavy machinery. Steel. Copper.

Controls required for the new phase of the war economy will involve transportation, power, manpower, fuel—rather than limitation orders on civilian goods and contract letting and redistribution.

Stress will be placed on renegotiation of contracts, rather than the letting of contracts. The relationships between Government and industry have been established. The industry that now holds war contracts is in war production for the duration.

Next step will be for the establishment of closer relationship between buyer and seller. The Government aims to find out more about the industry that is selling the materiel of war. More about the management, plant facilities, profits. The industry that is producing on war is in large part a metal consuming industry. The WPB will seek more metal industry men in its ranks, more heavy equipment industry advisors. Financial advisors will now be drawn to a greater extent from the metal industries. The same will hold true for legal talent.

WPB is assuming a new role, and its personnel is being recast to fulfill that role.

OPA DILEMMA ON EXCESS PROFITS POLICY—Office of Price Administration is in a difficult spot as to policy on industry profits. On military pro-

duction, policy will be to maintain a fairly elastic system, allowing a sufficient profit to encourage production. Through renegotiation, the Government will prevent inflated war profits. Policy will be to absorb such profits through renegotiation, rather than rely on taxes to mop up the excess.

A similar policy has been recommended for non-military industry. However, the fiscal policy of the nation has been based on the yield from taxes on excess profits.

OPA has recommended that Congress replace the source of revenue reached through taxation on excess industrial profits with a stiffer tax on personal income. This, Congress has been reluctant to do. If OPA bears down too heavily on prices, and mops up too severely on excess profits, it will upset the overall Government fiscal policy.

Therefore is likely that OPA will use moderation—until Congress adopts a much stiffer personal revenue tax.

BULK LINE PRICING—One of the major difficulties in price control has been to keep the tail from wagging the dog—to keep the small percentage of high cost producers from fixing the price for the entire industry.

Problem is most clearly outlined through price action on scrap iron and steel. The largest part of available scrap tonnage would come in at a moderate price, even in a high price market. Possibility is that remote scrap—representing a comparatively minor tonnage—would not flow in.

During normal periods, supplies of scrap from areas in proximity to the mills would be adequate. During war, scrap becomes a constant shortage factor—every ton of available scrap is required. To get in the remote scrap, a higher price is necessary. Question develops as to whether price of all scrap be increased to a point where remote scrap flows in, or whether the price be set at a point where the bulk of available scrap flows in.

In the case of scrap, OPA set a fairly high ceiling, and then relied on patriotic scrap drives to make up the deficiency. In other industries, OPA has drawn a "bulk line", and set a price to attract all sellers within the bulk line price. All other producers are treated as special cases—application must be made, and only after careful scrutiny will exceptions be granted. If the national economy needs the product, and if the producer would be squeezed out without some relief, OPA will make an exception.

If the number of exceptions granted moves beyond a particular point, the bulk line price ceiling is automatically voided.

It is admitted that the system of price control at best is merely a drag on prices, not an absolute lid.

POLITICAL CONSIDERATIONS ON THE WANE—When ballots have been finally cast in the November elections, Government officials will take off their gloves and get down to the essentials of a war economy. Already there have been signs of decreasing importance being attached to political considerations. There is more talk in Washington about the fact that we are in a war.

Rumblings have been heard that the country is tired of pussyfooting. These rumblings have hastened the processes of Government, and eliminated some politics. When the polls are closed, political considerations will no longer play an important part. First consideration will be the war.

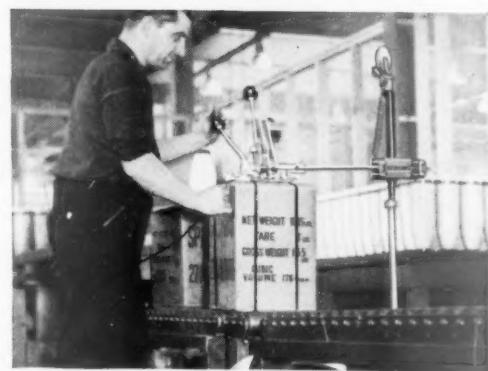
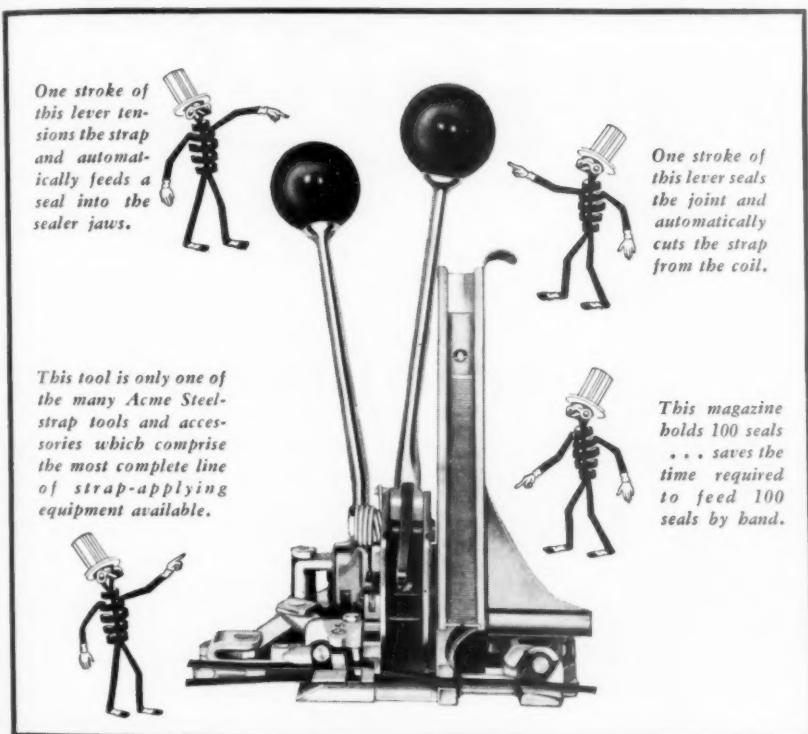
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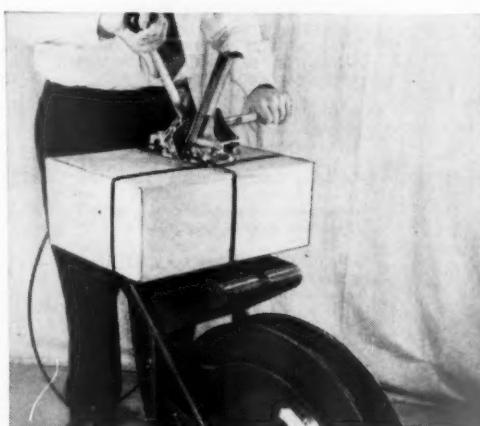
SPEED CHAMPIONS OF STRAPPING TOOLS



Everything from airplanes to food — war products are packed easily and speedily with Acme Steelstrap.



The packing of bulky and otherwise hard-to-handle packages is simplified with Acme equipment. Steelstrapping is swift and effective . . . makes handling easier — faster.



THE fastest application of strap ever known! That's what Acme Steelstrappers are giving hundreds of shippers of war products. Only one stroke of two levers tensions, seals and cuts the strap. This automatically seal-fed strapping tool is easily handled . . . assures exceptionally low strapping costs.

Combined with Acme Steelstrap (which meets all Federal Strapping Specifications) Acme Steelstrappers will speed your war shipments. Acme representatives, experienced in helping shippers fulfill Government requirements, can help you with your strapping problems . . . show you ways to apply strap faster. Write, phone or wire the nearest Acme office.

ACME STEEL COMPANY

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.. by giving him jobs like these:



* HERE'S HOW GRAYBAR
"WAY-FINDER" SERVICE
HELPS MEET YOUR ELECTRICAL
NEEDS.

1. AID ON WHAT TO ORDER . . .
GRAYBAR "Way-Finders" try to keep well informed on delivery conditions, and can suggest practical substitutes for unavailable items.

2. AID ON HOW TO ORDER . . .
GRAYBAR "Way-Finders" try to keep abreast of priority rules. Often, they can outline steps that save time and reduce "red tape".

3. AID IN "SHOPPING" FOR SCARCE
ITEMS . . . GRAYBAR "Way-Finders" know where to go, whom to wire, to expedite inquiries that may bring to light the things you need to keep war work rolling. In an emergency, a network of over 80 branches speeds this job.

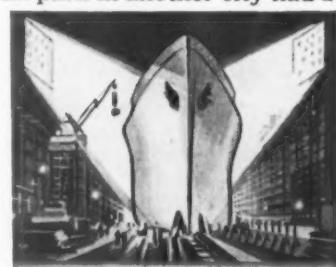
4. AID AS TO WHO MAY BE ABLE
TO MAKE IT . . . GRAYBAR "Way-Finders" knowledge of the products and facilities of more than 200 suppliers often brings to light possible sub-contractors or supply sources for special products.

A COMPLETE SHUT-DOWN of a 300-man department working on bomber parts took place when the main service cables burned out one afternoon. Local stocks of cable of this size and type were exhausted—factory delivery was a matter of several weeks!

But the GRAYBAR Man you appealed to remembered that cable of the same size, though a different type, was being used in production quantities by another plant 30 miles away. He arranged to borrow enough of the cable to meet the emergency, and made the 60-mile drive to procure and deliver it to a waiting repair crew. When the night shift arrived, production was again ready to roll.

TO BUILD MORE SHIPS to beat the Axis, an Eastern shipyard needed more light for night work. 232 large floodlights had to be on the job with only a fortnight to go! Factories making floodlights were jammed with priority work. Warehouse stocks were touching bottom.

Finally, one of GRAYBAR'S Outside Lighting Specialists came through with a tip: a professional ball park in another city had a supply of floodlights that would fill the bill; lights previously purchased to illuminate their playing field which currently could not be installed. Once the greater need was explained, the lights were released for immediate shipment to the East . . . via GRAYBAR. They were delivered 5 days ahead of schedule.



Graybar

IN OVER 80 PRINCIPAL CITIES

Executive Offices: GRAYBAR BUILDING, NEW YORK, N. Y.



When writing Graybar Electric Co. please mention Purchasing

PURCHASING

NOVEMBER, 1942 CONTENTS



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**AMERICAN CABLE
TRU-LAY
Preformed
IS HELPING**

This is no time to have machine shutdowns. By lasting so much longer **TRU-LAY PREFORMED** reduces shutdown frequency and steadies production.

This is no time to have workmen laid up with blood-poisoned hands. Some operators have drastically reduced accidents by adopting American Cable **TRU-LAY PREFORMED**—the safer rope.

This is no time to waste steel through the use of short-lived equipment. By lasting longer and working better **TRU-LAY PREFORMED** conserves steel for other essential machines.

American Cable engineers will gladly give you the benefit of their experience in helping you make your wire ropes last longer. All American Cable ropes made of Improved Plow Steel are identified by the Emerald Strand.

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BRIDGEPORT • CONNECTICUT



ESSENTIAL PRODUCTS . . . AMERICAN CABLE Wire Rope, TRU-STOP Emergency Brakes, TRU-LAY Control Cables, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Iron Castings, CAMPBELL Cutting Machines, FORD Hoists and Trolleys, HAZARD Wire Rope, Yacht Rigging, Aircraft Control Cables, MANLEY Auto Service Equipment, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Electric Steel Castings, WRIGHT Hoists, Cranes, Presses . . . *In Business for Your Safety*

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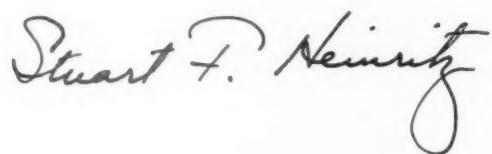
PURCHASING and MANPOWER

PURCHASING Agents are keenly aware of the manpower problem.

Their work is increasing with each passing month. In one city, we have recently visited one department which has grown from a staff of three to twenty-three within the past year; another which has grown from twenty-two to a hundred and has pushed the sales group right out of the main office building. A department described in these pages less than six months ago reports: "Multiply all the figures by three and you'll have the picture as of today." One less fortunate, though in an essential food industry, has been cut by the demands of military service from a staff of seven buyers to three. We have talked with men who were only recently in sales, accounting, and service divisions, now valiantly pinch-hitting with the purchasing team.

There is food for thought in the manpower statistics announced by Congressman Monroney of Oklahoma: Men serving in the Armed Forces, up 25% from World War I; those employed in war industries, up 10%; federal government personnel, up 280%; state and local governments, up 100%. And in numbers, not percentages, the totals are even more alarming. Total government employees number 5,589,132, or half a million more than the number of those serving in the armed forces. Congressman Monroney observes that branches and bureaus have expanded "without any measure of essentiality." He concludes that to a large extent the government is creating its own manpower problem.

We have never yet run across a successful industrial organization with a man on the Board of Directors for every man in the shop.

A handwritten signature in cursive ink, appearing to read "Stuart F. Heinrich".

RYERSON

Founded in 1842

Completes

One Hundred Years of

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Third article in
a vital series

★ RED TAPE MUST GO!



HOW TO BUY A SCREW

Government procurement methods can complicate even the simplest business transaction to the point of utter confusion

Here's what happens when a half dozen red tape artists undertake to tell a manufacturer how to run his business

By STUART F. HEINRITZ

LET'S consider a very commonplace item—ordinary machine screws. They are manufactured by the ton, and used by the millions in your car, your radio, your typewriter, the light and heavy equipment in your shop, the great transportation industry that carries

your product to market — in fact, wherever that humble but highly essential job of holding things together has to be done. They are used by the millions, too, in war industries, since we have stopped making cars and radios and typewriters. In airplane motors, fuselages

and parts, in precision instruments, in ordnance, in military vehicles, and in the plants and machinery dedicated to war production. Without them, much of our vaunted production record on the important and widely publicized "planes, ships, tanks and guns" would simply fall apart.

Normally, if you or I want to buy a handful of machine screws, we would find them on the shelves of any well stocked hardware store in a surprising range of sizes with fractional graduations of length and diameter, and a variety of head styles, metals and finishes to suit our need, all neatly packaged for our convenience, and all for a few pennies a box. If we were buying in larger quantity for industrial use, to more exacting specifications, we would still find the manufacturers a step or two ahead of us, with literally thousands of standard styles and sizes ready to our purpose, catalogued and stocked. In other words, the industry has made this small, essential utility item exceedingly easy for the customer to buy.

And for a line of products which necessarily runs into such a multiplicity of detail in order to maintain complete stocks, with some numbers on a staple mass production basis while the next intermediate sizes may be of limited demand and correspondingly higher production cost, the industry is organized to do its marketing also in a simple and orderly fashion.

Government Buying is Different

But the moment this simple transaction is transferred from the civilian or industrial to the military or governmental realm, it becomes very complicated indeed. Buying and selling methods are thrown into confusion. A tangled web of red tape is thrown around the bid, the order, and the shipment, and it sometimes forms an



impenetrable barrier between the producer and the potential user just at the time when the national interest demands that they be working together in closest harmony.

There is a case on record in which the manufacturer was actually unable to make a technically acceptable bid to a nearby naval torpedo unit, though he had the equipment and capacity to rush through the very goods for which the Navy was clamoring, and would have been delighted to do so. But he had neither the time nor the facilities to unravel the red tape maze of cost breakdown requirements. That particular case went right up to the Commander of the Naval District, who was sympathetic and anxious to help, but impotent to slash through the red tape with a common sense decision. The contracting officer had the optional privilege of requiring that breakdown, and he elected to exercise that option while our merchant shipping was suffering terrific losses of life and tonnage in those very coastal waters. At least, that is the final report to the manufacturer. If this explanation is even partly true, then red tape is helping to drag those ships to the bottom.

An Actual Case Record

This article is based on the experience of a representative manufacturer in working on his current contracts, in effect during this fourth quarter of 1942. The problems are problems of today.

This manufacturer is well established and highly regarded in the industry, of which his plant is an important unit. He is working practically 100% on war contracts, regular commercial business having gone by the board for the duration. A considerable proportion of his production—the most satisfactory and most economical portion—is on subcontracts for airplane motor builders. The remainder is on direct contracts with the Army, Air Corps, Navy, and Lend-Lease (Treasury) Procurement. There are no unusual circumstances here, no complications due to cost-plus contracts or the like. Everything is on a firm bid basis, subject of course to renegotiation.

At the very outset, he must bear in mind that he is now dealing with a dual set of standards. Lend-Lease business for the most part is on standard catalog products. But for items which eventually find their way into military or naval equipment, the Army/Navv specifications must be observed. That in itself is no great obstacle, for it is a condition of long standing, not a new wartime regulation. Most screw manufacturers have done more or less business with the armed branches over a period of years, and their requirements are on file, being regarded as semi-standard in the industry. It is well that this is so, for a good many bids have to be made from blueprints, and some of the details (such as polished surfaces, for example) are not always shown on the prints nor stipulated in the invitation to bid. The inspector may or may not insist on observance of these details in a particular order. This uncertainty makes it difficult to arrive at a firm cost in the estimate; the one thing that is certain is that the quotation can not be increased after it has once been submitted. The specifications also frequently call for a deviation from customary standards of packing—100 to a box instead of a gross, or *vice versa*.

The invitation to bid may come in a variety of forms. Most branches of the service furnish the form to be used, each with its own peculiarity as to method of handling and supplemental information to be furnished; on Lend-Lease business the quotation is made by letter.

The Short Form — 114 Pages

The Air Corps uses "Short Form Contract" for Invitation, Bid, and Acceptance (U. S. Standard Form 33). The term "Short Form" is somewhat misleading. At best, the single sheet form is accompanied by seven full pages of fine print—a "continuation schedule," pages 2 to 2f, containing forty-two additional clauses that may or may not apply to the contract. And experience teaches that the fine print must be read. The recent casual change of a suffix letter in the reference to packing instructions meant the difference between using ordinary shipping cases and special boxes fastened with screws instead of nails and painted olive drab. There was quite an argument about that requirement.

But that is only the simplest case. Customarily the descriptive list detailing the items for bid runs over onto additional continuation sheets. One such "Short Form" invitation contained 114 pages, listing 1595 separate numbered items to be individually priced and extended—in triplicate. Every page had to be signed, on all three copies—a total of 342 signatures. One or more blueprints may be included on special items, for estimating. When the bid is made, it must be accompanied by a cost breakdown (of which more anon) submitted in four signed copies. Besides this, a certified financial statement of the bidding company is requested, not more than three months old, to be supplemented by a quarterly balance sheet during the life of the contract if the bid is successful.

Once these preliminaries have been satisfied, the processing of the "Short Form" is direct and simple—for the government. The bid is made directly on this form, a space being provided for the formal offer and signature of the bidder on the first sheet. The award or acceptance by the government is likewise made on the same form, one copy being returned to the bidder. Unfortunately, the acceptance is indicated only by item numbers, so that the bidder has to go over the 114 pages again, item by item, to pick out his order.

Let's decide which

side we are

playing on



The "short form" of bid and contract does not always live up to its title. Here is one that runs to 114 pages; 342 signatures are needed to make a bid.

Something New is Added

The Philadelphia Navy Yard adds the further refinement that the bid must be signed by an officer of the corporation; also that his name be typewritten under the signature, which is an understandable request, some signatures being what they are. Another requirement is that the corporate seal be affixed to make it official. In this particular case it is a little troublesome in view of the fact that the screw manufacturing division which makes the bids has no corporate existence of its own, being simply a division of a larger corporation. Consequently it has no corporate officers or corporation seal, and it becomes necessary to send all the documents to the headquarters office, fortunately located in the same city, in order that the amenities may be observed. But this again leads to complications.

Winding themselves up in their own red tape, the Navy Yard procurement men became thoroughly confused by the apparent discrepancy between the bidder's company name and the corporate seal. To straighten out that situation, the company was obliged to file a certified photostatic copy of the minutes of the corporation meeting that had established the relationship many years before.

The Signal Corps also goes in for multiple signatures on every page of its bids. A recent bid invitation, originating from Fort Monmouth, seventeen pages in length, required fifty-one signatures by the bidder.

The Navy Bureau of Supplies and Accounts has occasion to buy for shipments to many destinations. It consolidates these requirements for the purpose of a single bid invitation, but does not consolidate the items. On one current inquiry covering 86 pages with about 30 items to the page, one item appears no less than twenty-nine times for as many different destinations; others appear anywhere from one to twenty-six times, each calling for separate pricing, extensions, and dollar totals for each lot. For purposes of calculation and scheduling, and to get a true picture of what is involved in this order, those quantities must be drawn off and totalled by size and style, then redistributed with separate extensions for the bid.

Conversion of Business Methods

It is obvious that with all these different ways of handling bid information and preparation—and these are but a few of many variations—no orderly or standardized methods can be consistently set up in the estimating and bid department, least of all the standard methods developed by the manufacturer as best adapted for handling his business expeditiously, with all its

There's nothing uniform
about the orders
given by our
uniformed services

detail of many styles and sizes involved on practically every order. Instead, there are dozens of red tape artists, with no knowledge of or interest in the problems of the manufacturer in a particular line of products, all telling him how he must conduct his business on their individual orders. As a result, an industry which has been built up on the basis of mass production, average costs, and catalog prices as the only practicable and efficient way of handling the distribution of its product, has been pushed back since Pearl Harbor to the burdensome and uneconomic status of a specialty manufacturer dealing individually with thousands of products of ridiculously low unit value.

An industrial lifetime of experience and effort has been spent to put this type of product on a practical marketing basis that means service and economy for the buyer as well as for the producer. With Uncle Sam

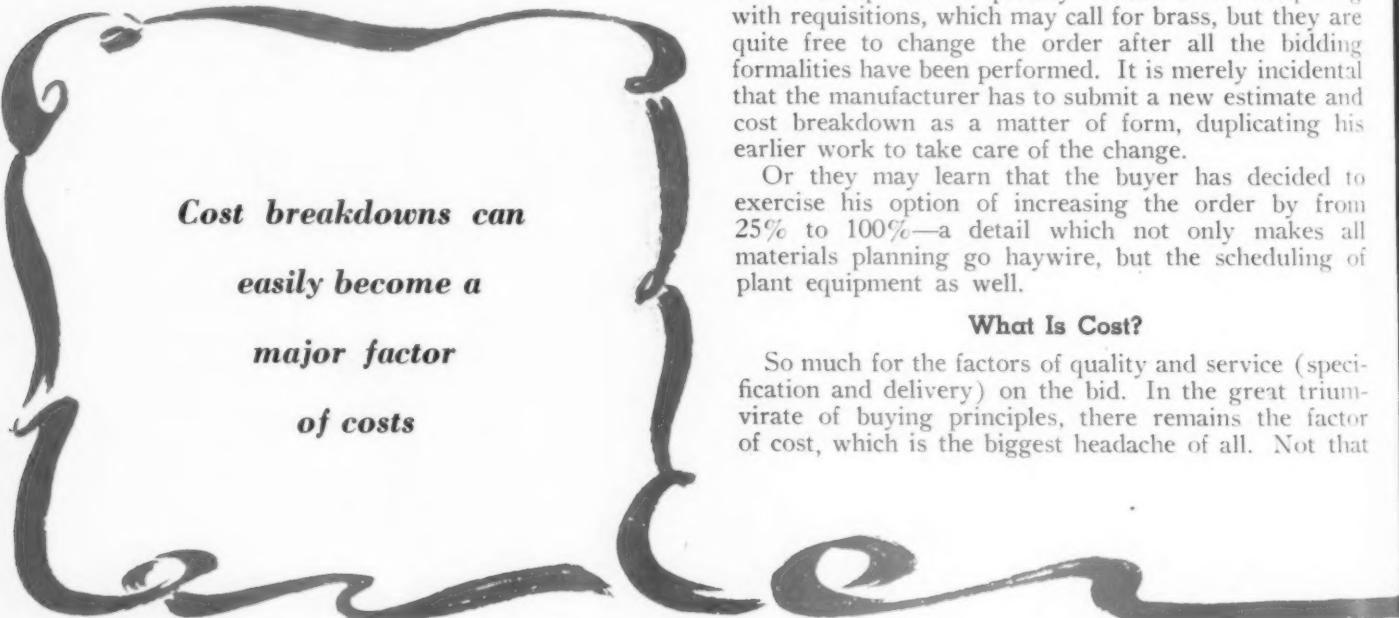
in the buyer's seat, all that experience has been neatly tied up in red tape and tossed out of the window for the duration. The War Production Board has recognized the situation so far as manufacture is concerned, and is still trying to work out procedures sensibly applicable to shelf merchandise. The procurement officers are still blissfully unaware that all business is not alike and will not respond with equal efficiency to the same rules. With the crisp and arbitrary authority of their rank, they snap out purchase orders like military commands—and each branch of the service is using a different manual of arms. They have succeeded only in creating a system, or lack of system, by which nobody—buyer nor seller—can possibly gain. The streamers of red tape are strangling both. Will it help win the war? It's time for somebody to give the command, "As you were!"



Promises by Guesswork

On just one point they are all agreed: they insist on a definite delivery promise date. And with the present situation in respect to materials and priorities, that's the one thing that the manufacturer can not promise with any assurance that he will be able to keep his word. Allocation of materials for shelf goods is not yet working satisfactorily; each order presents a problem of procurement and scheduling. And there's a vast difference between a bid and a definite order; you can't get on a rolling mill schedule on the strength of a bid. Even if the bid eventually develops into an order, there's a time lag, a lag which occurs in the governmental buyer's office routine and which the bidder can not predict nor estimate. Furthermore, he's in the uncomfortable position that after everything has apparently been settled, another priority issued by the self-same buyer may take precedence over his own, and push back his own receiving schedules by days, weeks, or months.

The only sensible procedure under these circumstances—the only honest procedure—is to make a promise dependent on the allocation of material, or so many days after receipt of material, or subject to the raw materials supplier's promise. But those conditional



**Cost breakdowns can
easily become a
major factor
of costs**

promises of delivery are not acceptable; in the procurement officer's book they don't mean anything—he has to have a date. So the manufacturer has to guess, and the procurement officer cheerfully accepts that guess, which means even less than the conditional promise. It satisfies the system. Of course the manufacturer tries to guess as intelligently as possible (and still get the order), knowing that he is crawling way out on a limb every time he inserts a definite date.

If the bid calls for brass, which is allocated on a monthly basis, he implores the procurement officer to let him know about the order before the first of the month, so that he may include the necessary tonnage in his month's requirements. But he knows from sad experience that this request will be completely ignored. Red tape unwinds just so fast, and no faster. The order may come in a day or two days late, but his opportunity to get the metal has been deferred by thirty days.

In the piping times of peace, when you could get an abstract of the bids at the time of the public opening, it was possible to anticipate requirements by several days, with reasonable assurance, and to make arrangements to get in the material. But that's a military secret now. You have to wait for the order, and with the internal red tape in the procurement system, it still takes up to two weeks to get out a purchase order after all the decisions have been made.

Out On a Limb

Nevertheless the manufacturer hopefully sends his most energetic salesmen around to Wright Field, to the Navy Yards, and to Treasury Procurement—not to sell, but to try and find out what is being bought, so that they may have a little better chance of meeting their promise. The procurement officers don't like it. They believe in expediting, but not in being expedited.

And what do these emissaries learn? Well, to take a couple of actual instances from their own files, they may learn that they got the order, but it's to be made of steel instead of brass. (This explains a 10-day delay, during which the sales manager himself has non-productively haunted the procurement office). A laudable decision from the conservation point of view, but scarcely conducive to efficient scheduling of materials. The red tape artists piously refrain from tampering with requisitions, which may call for brass, but they are quite free to change the order after all the bidding formalities have been performed. It is merely incidental that the manufacturer has to submit a new estimate and cost breakdown as a matter of form, duplicating his earlier work to take care of the change.

Or they may learn that the buyer has decided to exercise his option of increasing the order by from 25% to 100%—a detail which not only makes all materials planning go haywire, but the scheduling of plant equipment as well.

What Is Cost?

So much for the factors of quality and service (specification and delivery) on the bid. In the great triumvirate of buying principles, there remains the factor of cost, which is the biggest headache of all. Not that

there is any particular controversy over the prices bid and charged; the screw manufacturers have customarily applied a larger discount on governmental orders than on the regular line of commercial business, and the values are well in line. But in characteristic red tape fashion, the procurement officers are very much concerned with just how these prices are arrived at. The method seems ever more important than the result.

There are letters of acceptance on file, signed by lieutenants of the Air Corps, which do not question the bid price but point out—from a distance of some nine hundred miles—that the cost analysis and allocation is entirely wrong. They have a formula. Unfortunately, the formula does not fit all industry, but the red tape procedure is to distort the industry, and perhaps distort the figures, to fit the formula.

The Air Corps has been a pioneer in asking for cost breakdowns with every bid, and latterly the Navy

COSTS

MATERIAL
LABOR
OVERHEAD
PROFIT

~~.00001~~
~~.00002~~
~~.00003~~
~~.000000~~

RED TAPE .50



has followed suit. It is a request that can readily be rationalized as good buying, in the national and public interest. Certainly no reputable supplier takes issue with the principle of a cost audit; in any case his books are always open to the government for tax audit purposes, and the renegotiation clause in his war contracts is a clear recognition of his specific responsibility to use accurate costs in this emergency. But there is a vast difference between the audit of records in an established accounting system and the analysis of costs on an arbitrary basis which may be quite foreign to the industry's accepted practice.

The manufacture of screws is a tonnage industry. Costs vary widely according to the overall rate of operation, as well as the quantity run on an individual item. These considerations are, in many cases, more important cost factors than material and direct labor charges. If individual costs were to be calculated and

applied to each of the thousands of items in a complete line, the resulting price lists would be a confusion of figures with no orderly sequence or logical pattern.

As a matter of practical cost accounting, therefore, pretty generally throughout the industry and in many industries of a similar nature, it has been customary to rely chiefly on the operating rate as a measure of indirect costs and overhead, and to reconcile or average these variable factors over the entire line through the use of rather flexible percentages of manufacturing and administrative overhead. This serves both as the most accurate practical reflection of costs in any given period, and as a cushion for the fluctuations of industrial activity. It has been worked out so that the net result, over all operations, gives a substantially reliable cost picture, though in respect to any particular item the applicable cost estimate is frankly a fictitious one and may be either high or low in comparison to what an actual individual

cost would show. However, over any operating period, a fluctuation in the operating rate may change this situation—both apparent and actual—and these fluctuations are constantly occurring. The process of averaging is the only practicable method yet devised for dealing with such variations.

It is recognized that there is some looseness inherent in such a method, serviceable though it may be. Consequently there has been a serious effort, particularly in recent years, to effect closer controls on all factors where a more accurate calculation is possible, such as the allowances for slippage, set-up, short ends, labor and room overhead on specific operations, etc. This process of development has accomplished much. It has now been temporarily halted as OPA has in effect frozen the methods of cost determination. The cost accounting structure, for the industry as a whole, and for its various plant units, is fixed.

It should be emphasized, however—and the action of OPA lends authority to the statement—that these "fictitious" costs are in no sense arbitrary or dishonest costs. Such calculations are primarily a tool of management, and the principal victim of any inaccuracies or slipshod procedures would be the manufacturer himself. Intelligent businessmen do not go around deliberately fooling themselves.

As a matter of fact, the system has worked pretty well. But now, as war orders enter the picture, a maze of complications promptly ensues. Technically, a cost breakdown might be asked on each of the 1595 items, which would obviously be a burden that even the most ardent and autocratic red tape robot would hesitate to impose on a prospective supplier. The Air Corps procurement accountants honestly wish to be reasonable. But even with the best of intentions on their part, the technicalities of the system are too much for the realities of the situation.

Red Tape Accountancy

It has been pointed out above that an item-by-item detailed breakdown of costs would scarcely be compatible with individual quotations. Not on this basis, but on the theory of a spot check that would presumably eliminate clerical work in proportion, the Air Corps relented by suggesting, in this case, that three repre-

sentative items be selected for cost analysis. Since this still failed to take into consideration the basic elements of the problem, it provided a solution that solved nothing whatever. It became a major operation for the manufacturer, and largely a process of trial and error, to pick out three items that could be accepted as representative and whose costs, consistent with the actual accounting methods, would approximate the breakdown applicable to the order as a whole. This was no simple problem, for you can't talk, in the same breath, in terms of the specific and in terms of the average. It is quite possible, for example, to assemble a group of men whose weight averages 150 pounds, yet no one of whom would actually tip the scales within 10 pounds, plus or minus, of that figure. No one of them could be taken as representative of the group, in regard to weight. Yet the individual weight is true, and the average weight is also true though any individual example would seem to belie it.

The figures then had to be reshuffled to fit the board and deceptively simple classifications of the Air Corps cost formula:

- (a) Material
- (b) Labor
- (c) Manufacturing overhead
- (d) Administrative overhead
- (e) Profit
- (f) Other expenses

Mindful of the possibility—and even the probability—of discrepancies that might arise from differences in definition or interpretation or inclusiveness of these headings, the breakdown was made in accordance with the company's own accounting records, as fixed by OPA, which could definitely justify the figures in the report. Into the "other expense" classification were placed the cost of packing, shipping, marking, inspection, etc., about half of this item representing expenditures peculiar to the handling of war contracts and occasioned by the stipulations of the bid. But from Wright Field came a "corrected" cost analysis, arbitrarily distributing Item (f) over material, labor and overhead. If the original breakdown had erred somewhat in precision as to the specific item, due to the accounting methods on which it was based, it was now made thoroughly unreliable by the insertion of sheer guesswork by remote control. Item (e)—Profit—was set at 7%, and a new item—Contingencies (3%)—was added in tribute to the incentive factor of private enterprise.

Analysis or Formula?

On the basis of this new and synthetic cost breakdown, of their own making, the Air Corps analysts proceeded to chide the manufacturer, laying down the principle that in an acceptable bid the ratio of manufacturing overhead to cost must not exceed 100%; the ratio of administrative overhead to cost must not exceed 10%; profit and contingencies as above calculated. (Other bidders please note.) On all three counts, the bidder's honest analysis of costs was out of line. This time however, because of the relatively small amount of monies involved, the analysis would be permitted to pass, but never again.

The bidder is now in a quandary. He can not by any stretch of the imagination find in this set formula a pattern to suit his operations. He can not possibly

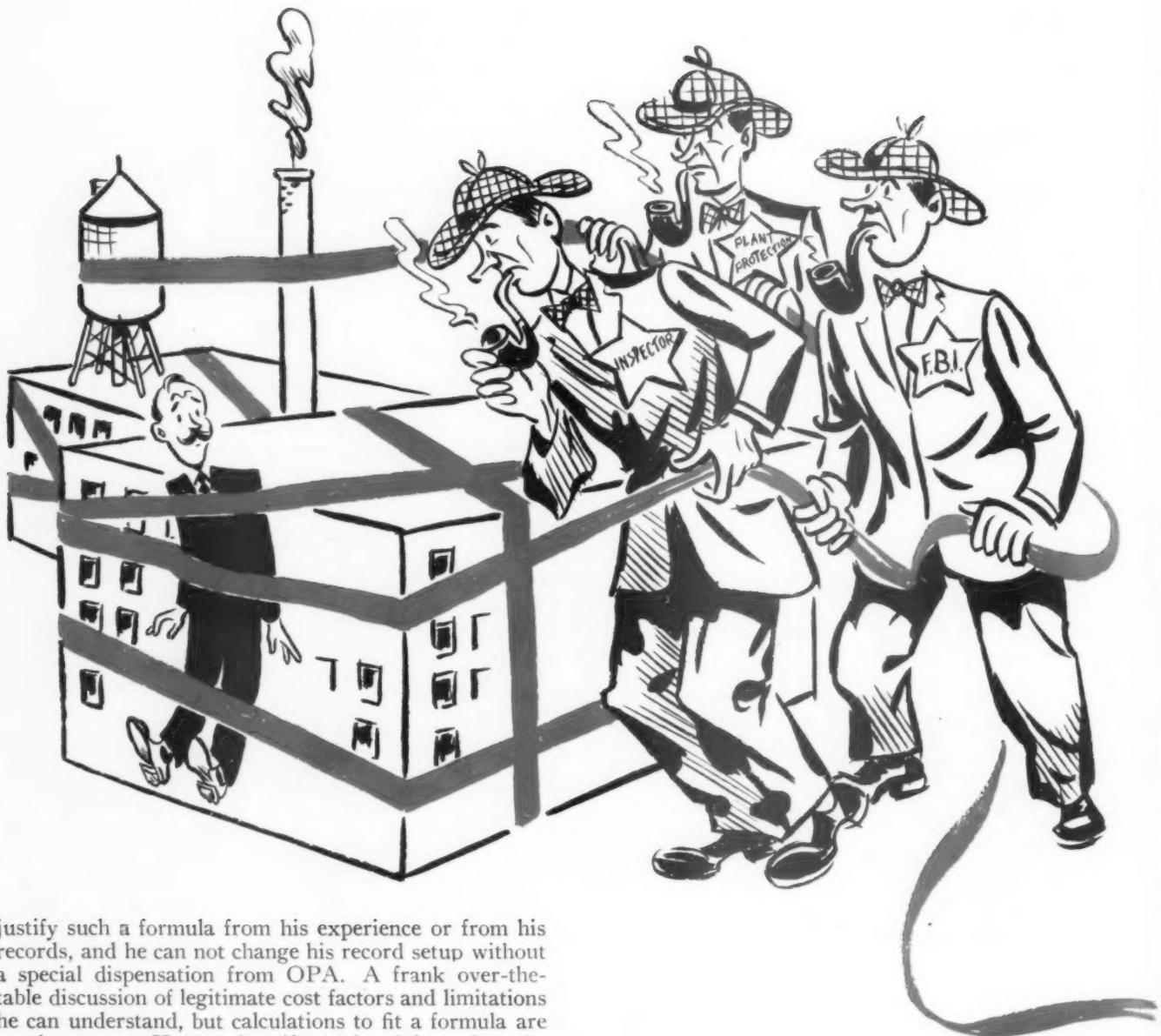
Procurement methods
should clear
the way to
War Production,
not bar it

Filling government orders

is a task for

Industrial Commandos





justify such a formula from his experience or from his records, and he can not change his record setup without a special dispensation from OPA. A frank over-the-table discussion of legitimate cost factors and limitations he can understand, but calculations to fit a formula are another story. He wonders if cost breakdown is to be construed as an analysis of the facts or as an exercise in logarithmic fiction. If it is the latter, it's just another case of expensive, burdensome and meaningless red tape, another record for the bulging alibi file.

We might note at this point that OPA's interest in his quotations is not limited to direct war contracts. This is another general emergency regulation, cumulative with the other requirements of records and reports from business today. Our manufacturer normally makes about three hundred quotations per day, and these must be filed to the OPA office. The recently permitted alternative is a filing of customary methods of calculating prices, of quantity variations applicable to them, and of special examples.

A Corps of Experts

In due course of time, some of the bids grow up to be orders, and the purchasing department goes through the necessary procedure to obtain authorization for the needed materials, and to procure the materials them-

selves. This is an activity in which all purchasing departments are busily engaged, and needs no special comment here. The fourth quarter is well under way, and the details of materials needed for the first quarter of 1943 are being called for, before the purchasing and operating men have received any inkling of what is to be allotted to them for the current three-month period. There is a popular term for this type of "planning"—it's merely guesstimating.

The list of clients in this instance includes the Air Corps, Navy, Engineers, Signal Corps, and Treasury Procurement, besides prime contractors coming under these and most of the other service branches. Under the plant protection clauses in the various contracts, all departments immediately take an interest in conditions at the plant and in the handling of employees and visitors. There are regular inspections by the expert from FBI, the expert from the local Ordnance District,

the expert from the Signal Corps, and the experts from the Air Corps. Each of these has authority to issue instructions. When the experts disagree, as frequently happens, the instructions have to be reconciled before they can be put into effect.

One of the protective measures has been the erection of a six-foot wooden fence, not solid, along one side of the brick power house, a sidewalk's width out from the grilled windows. The six-foot dimension is presumably dictated by the fact that the stature of the Japanese race averages five feet three or four inches. Even this aging and one-too-agile reporter is confident that he could scale the barrier if occasion demanded, and any child could lob a missile over it. The one thing which it definitely accomplishes is to force pedestrian traffic to and from the factory gates out into the street among the trucks. Just around the corner, at the unprotected end of the same building, is a large open arched doorway, revealing the entire length of the power line. If such things are to happen here, a lethal missile could be tossed in at any time from a passing car.

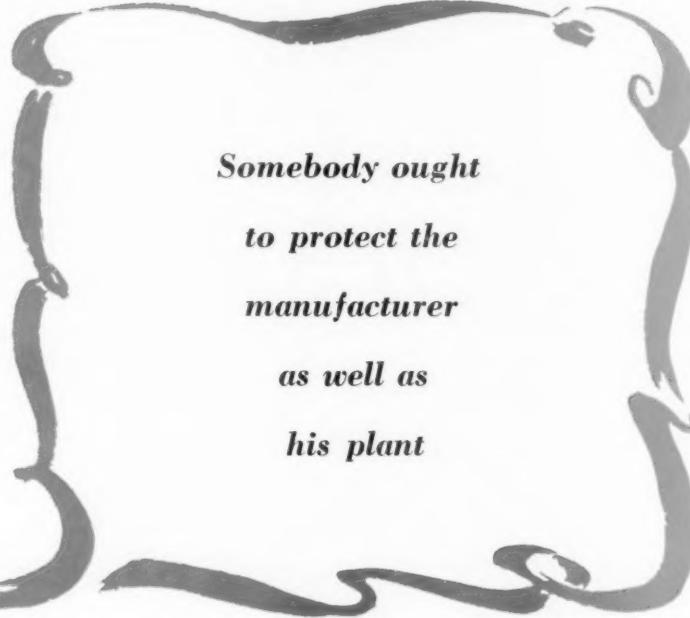
A Blackout of Intelligence

Meanwhile, from his vantage point some two hundred miles away, a Navy Yard ensign has decreed certain black-out instructions, specifically to prevent the silhouetting of ships against the light and making them easy targets for some prowling submarine. It was explained to this conscientious officer that the plant is situated some forty miles from salt water, and that it nestles among other factory buildings of equal or greater height, which surround it on four sides, but this information only made the ensign more emphatic in repeating the order.

A colonel of the S.O.S., on being told of this incident, asked, "Why didn't they tell him to go to Hell?" Even in a democracy, one doesn't tell the U. S. Navy to go to Hell, and it is exceedingly doubtful whether they would steer that course if one did invite them to do so. As a matter of fact, even a colonel of the S.O.S. wouldn't

is the sufficient indication of what the package contains. But here's a Lend-Lease order going through the shop—thousands of little boxes, most of them only fractionally more than an inch in their greatest dimension. In addition to the descriptive label, it is now necessary to rubber stamp each box with the contract number (two lines, with 12 digits to the line); to rubber stamp it again with the item rubber as indicated on the contract; to rubber stamp it again with the identifying part number (12 digits); and to rubber stamp it a fourth time to indicate the finish. The box is literally too small to hold all this information on one face; the stampings slop over on the side.

But this is not all. Ten of the little boxes go into a larger box, and the four stamped impressions are repeated on that container. Then the larger container is sealed with a strip of kraft tape and awaits a fifth stamping as the sign of inspection and acceptance. Of course this last operation must await the weekly visit of the inspector. It is not only impossible to case the shipment and get it moving; all the little boxes have to be spread out on skids or tables in the shipping room, available for whatever visual or other inspection the arbiter may wish to make—an arrangement that ties up a lot of space and effectively halts the smooth flow



**Somebody ought
to protect the
manufacturer
as well as
his plant**

to tell an ensign to go to go to Hell. He could report it to the general, and the general would confer with the admiral, and the admiral would tell the commander, and the commander would tell the lieutenant commander, and the lieutenant commander would tell the ensign. Such are the channels of military communication.

1,800,000 Rubber Stamps

Eventually the order is ready to go into production. Actual production is the least of the manufacturer's worries, so far as red tape regulations are concerned. But as soon as the screws are ready to be packaged—placed in those neat little boxes which make it easy for any customer other than Uncle Sam to buy what he needs and to identify what he has bought—the extra effort begins all over again. In normal commercial practice, his label designating quantity, type and size,

of the product from machine to destination. This last stamping, by the way, is also done by the manufacturer's men, after the inspector has given them his OK, sometimes after breaking open a half dozen boxes for examination, and sometimes after a casual chat in the lobby.

This happens to be rather a sizable order, but a typical one, and one of many. On a conservative estimate, it calls for no less than 1,800,000 rubber stamp impressions to get it ready to put in cases. That runs well into three figures for the man-hours involved. How much of this is actually necessary? To what extent does it help to speed production and to win the war? If any critic of stodgy routine purchasing methods is looking for a chance to hurl the "rubber stamp" epithet, Lend-Lease buying will furnish him with the ideal and irrefutable opportunity for his invective.

The whole matter of inspection is respect to a product such as these screws is another example of multiple

responsibility and of red tape regulations used to dignify a nominally important but actually routine function. There are scores and hundreds of types of war equipment on which inspection is vital and the maintenance of resident inspectors wholly justified. To apply that selfsame technical requirement, to spend the time and go through the motions on a lot of machine screws, bespeaks an utter lack of discriminating judgment—one of the most insidious characteristics of red tape procedure. If any evidence were necessary to show that this is the case, the manner in which the operation is carried out gives a convincing answer.

Inspection, Military Style

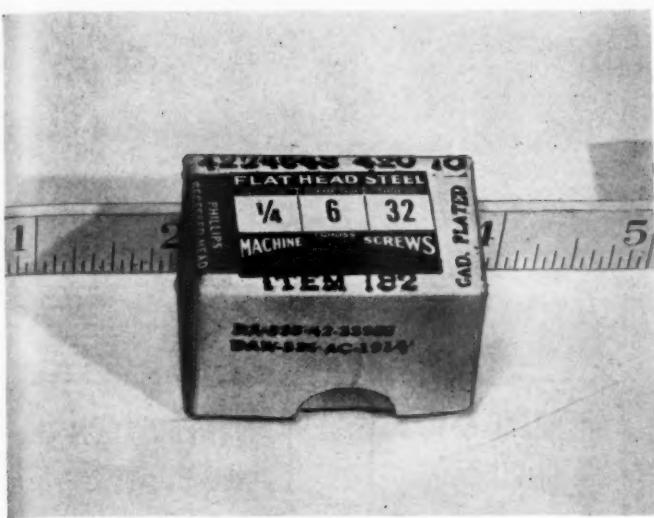
There are, no doubt, some particular orders, some end-use applications calling for special precision, where careful inspection would be fully warranted. It would

be a simple matter to mark these orders for the attention they deserve, and to make whatever arrangements are necessary to have them really inspected before acceptance. It would be a small percentage, indeed, of the total, and the job would be more adequately done.

Instead, we have five high-grade men, technically competent, representing the Army Engineers, Navy, Air Corps, Signal Corps, and Treasury Procurement, dashing madly about from their headquarters in five different cities, trying to cover a territory of 30 miles or more in radius, running in and out of dozens of factories and doing a cursory and superficial job. We have shipping floors cluttered, shipments delayed, and plant personnel wasting time in double handling of products.

And what is the final significance of the inspector's stamp? That red tape has fastened responsibility on a





This is an actual photograph of a box of $\frac{1}{4}$ -inch machine screws, hardly big enough to carry four rubber stamp impressions required by Lend-Lease purchase regulations. Four more stampings are required on the carton, plus the inspector's stamp—a total of more than 1,800,000 impressions on this particular order. Figure it out in terms of man-hours.

particular individual in the service—a responsibility so remote that it is delegated without hesitation to the other party in the contract—the very one whom it is desired to check. If inspection means anything at all, it certainly does not serve its purpose when a manufacturer who has the responsibility for furnishing a satisfactory product can transfer that responsibility to a government inspector by the simple act of affixing the latter's stamped approval.

Waiting to Ship

And now, at long last, the goods on this Lend-Lease order are ready for shipment. It is more than likely that the foreign government for which they are destined is hounding the manufacturer with urgent pleas for delivery. But still further formalities must be observed. The manufacturer makes application to Treasury Procurement for shipping instructions, and also for government bills of lading that will enable him to send them on their way.

Throughout the early part of the contract he has been making weekly progress reports to Washington, on a large form, 14 x 19 inches, with column after column of minute detail, and a space at the end for remarks. The notation in this last space has characteristically been: "Waiting for Inspection" or "Waiting for Shipping Instructions" or "Waiting for Government B/L"—or all three. These remarks were of so little practical effect, the report itself apparently such an empty formality, that eventually he stopped sending

it in, and for six weeks it wasn't even missed. Since August it has been revised to a somewhat smaller size and covers a semi-monthly period instead of a week.

The government bill of lading is quite a formidable document, its ten copies giving a complete rainbow effect. The standard distribution is indicated on the form. The original and a yellow copy go to the consignee; a pink copy is retained by the shipper; a salmon copy is given to the carrier at origin; Treasury Procurement gets four copies at different addresses—a blue one for the Inland Traffic and Expediting Unit in New York, a green one for the Finance Division at Washington, a canary copy for the office in the area of origin, and a red one for the office in the area of destination; the two remaining copies (white) are for the foreign government concerned, and are sent with copies of the invoice. However, this by no means represents all the bills of lading which may be asked for. When the shipping instructions arrive, he may be called upon to provide several additional copies and to observe special patterns of distribution.

System Without a System

Meanwhile, in accordance with the shipping instructions on this Lend-Lease order, a variety of other documents must be prepared. The complications are not so much a matter of the number of copies, for after all it is easy enough to make a few extra copies by inserting another sheet of carbon or running them off on the duplicator. But it remains a mystery why the number of copies and their distribution should vary with each succeeding instruction dealing with the same material, shipped on the same contract. If red tape were only consistent, a routine could be set up to deal with it more or less efficiently, even though the suspicion persists that a lot of extra useless operations are involved. This suspicion is confirmed when one week's ironclad requirement is relaxed or omitted completely in the following instruction, only to reappear a little later in slightly different form. And in that process there is chaos for the shipper's organization, which is trying to keep up with the ever-changing procedure.

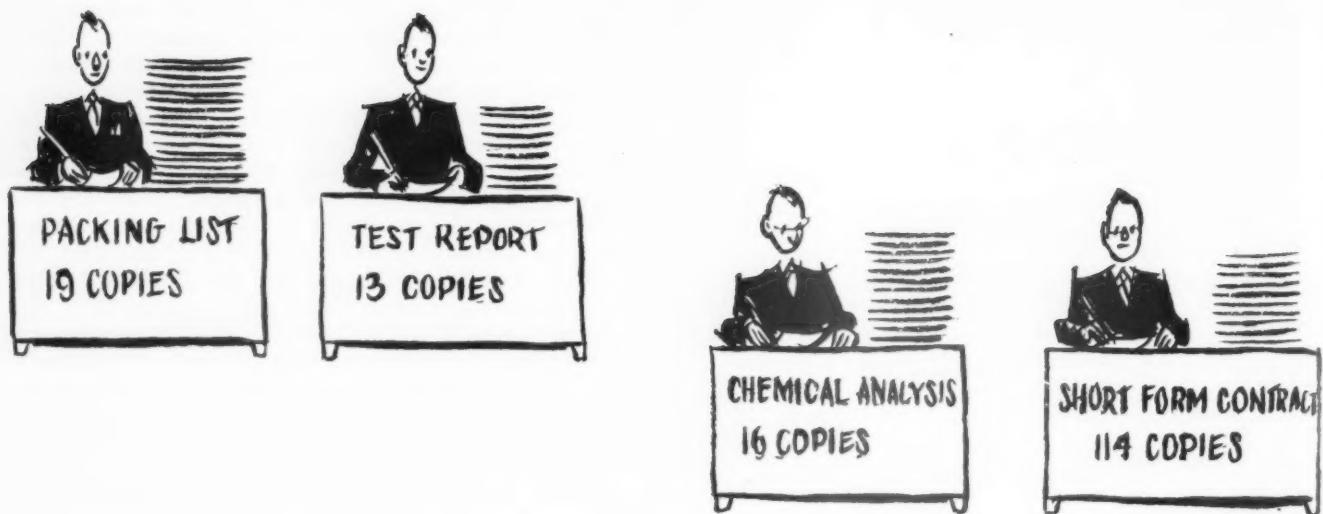
Here, for example, is this Lend-Lease order involving five shipments over a seven-week period from July to early September. Five basic documents are required,

"Rubber stamp" buying

methods give way

to rubber stamp

production



and no one of them is consistently handled throughout the five shipments, three of which were made within a period of eight days.

Of the invoice, 25 copies are called for on two occasions, 26 copies on another, and 27 copies twice.

Of the bill of lading, there are two requests for four copies, two for seven copies, and one for eight.

A chemical analysis is required—twice in 4 copies, and three times in 16 copies.

The packing list calls for 17, 18, 19 or 20 copies, and the test certificate for either 12 or 13 copies.

The total number of papers involved in each successive case varies as follows: 75, 71, 78, 67, 79.

We may question the utility of 27 invoice copies, or why 17 to 20 end-record files should be cluttered with itemized packing lists. We may raise an eyebrow at the sheer clerical and executive effort required in handling 79 separate documents, assuming that somewhere along the line each one must be distributed, noted, checked, and eventually filed. But that, after all, is the self-imposed problem of governmental buying. What we are really concerned with is the enormously complicated procedure involved for the manufacturer in what should be an extremely simple transaction of selling a machine screw.

As a matter of fact, the Treasury Procurement Division itself, at Washington, is consistent in this particular case, asking for three invoices, one bill of lading, and three copies of the chemical analysis on each shipment. Treasury's Inland Traffic and Expediting Unit at New York is also fairly consistent. Normally it asks for five invoices, one bill of lading, one chemical analysis report, one packing list, and one test certificate. However, on one occasion it asks for an extra invoice, and twice dispenses with the test certificate. The Washington office of the British Purchasing Commission, in addition to three invoices and four packing lists, latterly requested a copy of the bill of lading as well.

The New York office of the BPC is more erratic. As a starter, it takes twelve invoices and twelve test certificates. Then it may require two or four bills of lading, or none at all, ten or twelve packing lists; and chemical analysis reports ranging from none to twelve copies. The British Ministry of War Transport

modestly and understandably requests two bills of lading and two packing lists on every shipment. Then it may take from two to four copies of the invoice, and, on occasion, extra copies of the packing list.

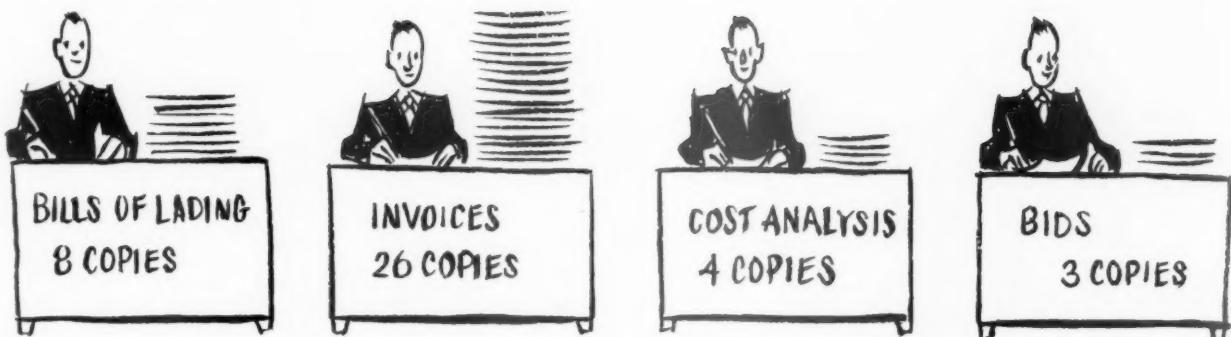
The net result of these variations in requirements is that not one of these five basic documents is uniform either as to the number of copies or their distribution throughout the life of a single contract. Every individual shipment against this one contract presents a separate and slightly different problem of paper work and records for the manufacturer.

Red Tape Strangles Industry

What conclusions are to be drawn from this rather detailed report of one manufacturer's experience? Fundamentally that red tape has transformed this simple process of selling an ordinary machine screw into an almost unbelievably complicated task for both the buyer and the seller. That in each successive step of bidding, cost accounting, manufacture, shipping, and billing, the manufacturer must forget the simple, uniform, and efficient methods learned through years of experience, and subject himself to the vagaries of half a dozen governmental agencies which tell him, independently and inconsistently even within themselves, just how the business must be handled. That the factor of administrative overhead expense, which should be low, and which the government properly insists shall be kept low, is multiplied all out of proportion by these very fantastic requirements of governmental buying. That the swift and economical production of an essential product needed in the war effort, is subordinated to records, reports, signatures, and all the endless duplication of the useless routine that is red tape.

A tragic aspect of the situation is that many of these requirements are dictated by a laudable desire to conserve public funds and public property. But the meticulous demands through which this desire expresses itself, these elaborate checks and double-checks, simply backfire and defeat their own purpose. Successful business recognizes the value of orderly procedure, the essential nature of records. It does not hesitate to spend time and money to make or save time and money. Red

*There should be
an "E" award
for Effort*



tape governmental procedure sedulously apes the motions, multiplying them and adding a few flourishes of its own—but by failing to understand the process, it winds up far from the mark. Methods, not results, become the important thing. Everybody loses.

The cost of red tape can never be completely known—its waste of effort, time, manpower, materials, and money—in the government itself, in the manufacturer's organization, and in the production of essential goods. It can only be suggested through such an example as this typical experience.

Wanted: Common Sense

And what can be done about it? Some specific local remedies are obvious in the case recited above. A large proportion of this formal, technical, mechanical routine could simply be lopped off and no one would

ever miss it, as in the case of the progress reports which were never made. But fundamentally it calls for a new philosophy and a new approach—common sense and judgment instead of blind adherence to system and form; fitting the method to the problem instead of forcing war production into the arbitrary pattern of a preconceived and faulty formula; permitting industry to use its knowledge and experience to produce for victory.

Government is business. It is big business. And the stake is victory, democracy, freedom, life itself. Time, manpower, brains, materials, must be utilized with a singleness of purpose to achieve our common goal, and that can only be done with the application of good management principles, forgetting the petty considerations of tradition and of wasteful, purposeless form. If industry is to be an effective partner in this war effort, Red Tape Must Go!

Here's the red tape necessary to send the order on its way. The manufacturer omitted sending in the large form above for six weeks, and no one missed it.



The first application of Contract Production Control deals with the materials going into three prime contracts on radio equipment.

FLOWING MATERIALS FROM THE TOP

WPB's Contract Production Control Plan offers a method of vertical scheduling for "quota materials" needed in the manufacture of essential war products

By A. N. Wecksler

(Photos by Office of War Information)

NATIONS at war have discovered that when the requirements of war production heavily tax the available supply of materials, it becomes necessary to devise a vertical system of materials allocation. One of the requisites of such a system is to establish a comprehensive bill of materials covering war production.

In contrast to the Production Requirements Plan—which in essence has operated in large part as an inventory control plan—and priorities, which at best represented a poor expedient, there is now in limited operation the Contract Production Control Plan, which is in fact a vertical allocations control.

CPC—as it is termed—operates on the basis that each war contract is reduced to its component material tonnages, and that materials can then be allocated to meet the proposed production schedules. The plan is not applied to all materials. It has been found in both Britain and Germany, where materials are controlled

through vertical allocations, that it creates unnecessary and impossible detail to maintain direct allocations controls over all materials.

Under CPC—and likely under the final allocations control plan when it is adopted—such materials as are critical and are used generally in industrial processes are designated as quota materials.

The quota materials established under CPC are carbon steel, alloy steel, copper, copper base alloys, aluminum, and rubber. The plan operates on the premise that through the control over these materials, the flow of all other materials falls into line.

Based on Successful Precedent

The plan was modelled after the British warrant system, with elimination of the use of the actual warrant, and in view of the successful operation of the warrant system in Britain, Navy officials became interested in



Myron Zobel, a civilian employee of the Navy on loan to WPB, who is co-author of CPC. Julian Armstrong, another Navy employee, worked with him on the plan.

the contract control plan.

Currently, three major producers of radio equipment are operating under CPC, and these firms indicate that its operation is both practical and convenient. The plan, it is claimed, does not throw an undue burden on subcontractors, and in proof of this contention point out that one of the contracts which is controlled under CPC entails the subcontracting of 1,255 different parts.

Specifically, CPC does not differ to a major degree from the Bill of Materials Plan proposed by the automotive industry, nor does it differ radically from the British warrant system.

Other vertical systems have been proposed, and from all indications the vertical allocations system which will be adopted by the War Production Board for general use will represent a compromise between CPC, the Steel Budget Plan (also patterned after the British warrant control system), and the plan proposed by members of the automotive industry. Such a plan would of course be subject to further modification. The only vertical allocations system which has been in actual operation in this country to date has been CPC.

Prime Contractor Has Responsibility

Contract Production Control calls for a full and detailed bill of materials, including all component parts and all materials, whether critical or not critical, contained in those parts. The mechanics of arriving at an exact bill of materials for a specific contract under CPC place major responsibility on the prime contractor, who is charged with the responsibility of assembling all information as to the material requirements for filling the contract.

The prime contractor must submit to the claimant (Army, Navy, or other service purchaser), a full, detailed and exact bill of materials showing just which materials are required, and in which months they are required, before he will be permitted to order the first delivery of these materials.

There are two reasons for this restrictive practice. First, if the prime contractor is allowed to order and to allow his subcontractors and suppliers to order before an exact bill of materials is presented, it is quite possible that his orders will exceed the supply available



Ernest Kanzler, WPB Director General for Operations, is trying to work out a vertical allocations system.

for that period. Second, if the prime contractor and his suppliers can order as much material as they want to start production, the incentive is gone which would encourage the rapid return of an accurate bill of materials.

In practice this requirement is not as difficult as it might seem in theory. Use of a recently simplified form, as yet not formally approved and still in an experimental stage, makes it comparatively simple. The new form is CPC Revised No. 2.

Subcontractor Schedules Requirements

The prime contractor in making out a purchase order merely attaches this CPC form, bearing the serial number of the particular contract. This CPC form in effect requires the subcontractor to specify if he can make delivery on the dates set forth in the purchase order, and what tonnages of the so-called quota materials he will require in order to fulfill the subcontract.

When the prime contractor has received such commitment from all the subcontractors, he is in a position to compile a complete bill of materials covering a particular contract. He then submits this bill to the contracting agency, which in turn is in a position to transcribe its requirements for war materiel into specific tonnages of scarce materials.

Materials Are Allocated

These total bills of materials are submitted by the service agency to a joint board, corresponding to the Requirements Committee. This board, on which sit representatives of the steel, copper and aluminum branches of WPB, determines jointly—based on the most critical materials—the quota to be allotted to the various claimants (Army, Navy, etc.).

On the basis of determinations by this board, the service purchasers are in a position to determine policy on delivery of equipment. If the materials allotted the service purchasers are not sufficient to meet the bill of materials of all contracts, the service purchaser proceeds to scale down the bill of materials on specific contracts.

If it is decided that a percentage cut is necessary, the contracting agency informs the prime contractor that



Ferdinand Eberstadt, who came to WPB as Vice Chairman in charge of materials and production scheduling.

the contract is to be cut by a specific percentage, and the prime contractor in turn informs the subcontractor of this percentage cut.

The CPC form provides the mechanics for cuts in the tentative purchase orders issued by the prime contractor, with the purpose of compiling bills of materials.

Application of the Plan

CPC was officially launched August 15, 1942, as an experiment. Numerous refinements have been made since that time.

Operation of the plan entails the following:

1. A positive balance of demand to supply.
2. At least three critical metals used as controls—steel, copper, aluminum.
3. A required good bill of materials.
4. Discard of the old priority or preference rating systems.
5. A contract identification symbol and number based by all of the claimant's material quotas to pass

down from the prime contractor to each of his suppliers as an "open sesame" to the mills.

Products most likely to be brought under a complete vertical allocation plan, whether it is CPC or some modified plan, are: (1) End-products made on assembly line basis from large and continuing approved schedules; (2) End-products which are subject to a minimum of changes as to parts or materials; (3) End-products involving large quantities of critical quota materials; (4) End-products of high military offensive value—tanks, planes, trucks, half-track vehicles, machine guns, ammunition, and certain mass-produced communications equipment.

Details of Procedure

Outline description of CPC operation, incorporating the use of the new revised CPC No. 2 form, follows:

1. The prime contractor receives from the claimant (Army, Navy, etc.) a copy of CPC-1 to be filled out for each end-product which he manufactures.
2. If a new lot or a new contract is involved, the prime contractor fills out and places his own purchase



Tanks. . . .



Allocations for guns. . . .



Planes. . . .

CONFIDENTIAL—For Federal Agencies Only						
UNITED STATES OF AMERICA WAR PRODUCTION BOARD WASHINGTON, D. C.						
CONTRACT PRODUCTION CONTROL						
<i>This Form covers the period of October 1, 1942, through December 31, 1942, only. Use White Form if your deliveries under this contract extend beyond December 31, 1942.</i>						
A Prime Contractor Main Office Address (Street, City, State)						
1.						
Plant To Which This Form Applies Address (City and State)						
2.						
Total Number of Units Under This Contract		Date First Unit Promised	Date Last Unit Promised	Prime Contract Number	Lot Number	Contract Date
194		194	194	Number of Part Suppliers	Number of Different Parts	Actual Weight Per Unit
Pounds		Pounds				
B UNITS UNDER THIS CONTRACT WILL BE COMPLETED AS FOLLOWS			H DO NOT FILL IN—FOR USE OF THE SERVICES ONLY			
Total for fourth quarter.			APPROPRIATION Percentage			
October 1942.			AA-1 AA-2 AA-3 AA-4			
November 1942.			END PRODUCT END USE			
December 1942.			Total Number of Units Under This Contract			
C MATERIAL REQUIREMENTS—BY MONTHS			APPROPRIATION Percentage			
Material Code (1) Material Description (2)			UNIT WEIGHT—POUNDS			
Gross weight including cartons, boxes and packing (3)			Net weight (4)			
Unit of measure (5)			Available from inventory (6)			
Oct. 1942 (7)			Nov. 1942 (8)			
Dec. 1942 (9)			Totals (10)			
D			TOTAL UNIT WEIGHT (less spares and packing)			
E Do Not Fill In			PERCENT AUTHORIZED BY MONTHS			
Materials Committee			% % %			
Facilities Committee			% % %			
F CERTIFICATE—The undersigned hereby certifies to the War Production Board that (1) he executed this form in behalf of and on behalf of the Prime Contractor herein named above; (2) the information set forth herein is, to the best of his knowledge and belief, true and correct; (3) the materials are required in the quantities and at the times specified above; (4) the Units covered by the contract referred to herein and not for increased inventory or maintaining an inventory in excess of his requirements; and (5) similar material has not been ordered elsewhere for the same purpose.			G AUTHORIZATION FOR CPC-I FORM			
DATE: _____			AUTHORIZE			
BY: _____			APPROVAL			
TITLE: _____			AMORY BOUGHTON, Director General for Operations.			
<small>(Section 35A of the Criminal Code, 18 U. S. C. A. 90, makes it a criminal offense to make false statements or representations to any department or agency of the United States or to any officer within its jurisdiction.)</small>			<small>The prime Contractor shall preserve this statement for not less than two years for audit and inspection by the War Production Board.</small>			

(Sheet 1)

10-20000-1

CPC-1—SUMMARY							CERTIFICATE No.							
PRIME CONTRACTOR'S SUMMARY FORM														
Prime Contractor				Address (Street, City, State)										
Prime Contract No.		Lot No.		Date of Contract			Total Number of Units Under This Contract							
First Unit Promised		Last Unit Promised		Number of Part Suppliers			Number of Different Parts							
194...		194...		194...			194...							
MATERIAL CODE (1)	TOTAL FOR OCTOBER, NOVEMBER, AND DECEMBER 1942 (2)	TOTAL FOR JANUARY THRU JUNE 1943 (3)	TOTAL FOR JULY THRU DECEMBER 1943 (4)	TOTAL FOR ENTIRE CONTRACT (5)	TOTALS FOR ENTIRE CONTRACT (INCL. MFGS. LOSSES AND REJECTS)			DO NOT FILL IN BELOW						
					For Parts in units (6)	For Parts in spares (7)	For Parts ordered as overage (8)	(9)	(10)	(11)	(12)			

A summary sheet showing material requirements through 1943 is filed with the contracting agency as a part of the CPC-1 report.

order forms with each of his part suppliers.

3. He heads up and attaches to each purchase order a copy of CPC-2 (Rev.).

4. The part supplier, before returning the usual acknowledgment copy of the purchase order to the prime contractor, attaches a copy of CPC-2 (Rev.) after entering on it his promise of delivery and the material content of the part, and materials required to meet the order.

5. The part supplier totals all CPC-2's and the total, entered on CPC-1, gives an exact contract bill of materials by months.

6. The claimant (Army, Navy, etc.) checks this bill of materials against his quota of critical materials and, if the schedule is approved as shown, returns it with 100% entered at the bottom of each monthly column on CPC-1. If the claimant decides to cut the schedule of end-products, he indicates such a reduction by a reduced monthly percentage.

7. The prime contractor now rubber-stamps the certificate number and the authorized percentage for each month on the CPC-2 (Rev.) form and returns it to the part supplier.

8. Receipt of this "processed" CPC-2 (Rev.) makes the part supplier's purchase order "firm", and authorizes him to use the certificate number for ordering all of the parts and materials required to fulfill his purchase order.

CPC-1 form is the basis for controlling material schedules. It is a large form, 10 x 16 inches, made out in quadruplicate. The first section, shown herewith, is on pink paper, and covers the last quarter of 1942. Supplementary forms are used if deliveries extend beyond this period, with appropriate changes in the dates shown in the headings. A white form is used for the six-month period from January 1 through June 30, 1943, and a blue form for the period from July 1 through December 31, 1943.

PURCHASE ORDER MASTER							24151															
CPC #174-A							THIS NUMBER AND OUR PART NUMBER MUST BE SHIPPED ON ALL INVOICES, PACKAGES, PACKING SLIPS AND BILL OF LADING.															
							DATE 6/10/42															
							RENDER ALL INVOICES IN DUPLICATE															
John Doe Mfg. Co. 10 First Place Pocatello, New York							TERMS 2% 10 days															
<table border="1"> <thead> <tr> <th>FOB Destination</th> <th>SHIPPING METHOD</th> <th>DELIVER TO</th> <th colspan="3">DESCRIPTION AND DELIVERY</th> <th>PRICE</th> </tr> </thead> <tbody> <tr> <td>288,800 Posts</td> <td>Best Way</td> <td>Smith</td> <td colspan="3"></td> <td>\$10.00</td> </tr> </tbody> </table>							FOB Destination	SHIPPING METHOD	DELIVER TO	DESCRIPTION AND DELIVERY			PRICE	288,800 Posts	Best Way	Smith				\$10.00		
FOB Destination	SHIPPING METHOD	DELIVER TO	DESCRIPTION AND DELIVERY			PRICE																
288,800 Posts	Best Way	Smith				\$10.00																
<p>Shipment required per delivery schedule shown in Section E of the attached CPC-2 Form. Please sign and return this acknowledgment once it has been promised delivery dates in Section F of the attached CPC-2 Form. Retain one copy of CPC-2 Form and return the rest to us with the acknowledgment.</p>																						
<p>THE VENDOR AGREES TO PROTECT ITS SUBSIDIARIES AND CUSTOMERS AGAINST ALL CLAIMS FOR PATENT INFRINGEMENT ARISING OUT OF THE USE OR SALE OF THE PRODUCTS ON THIS ORDER.</p>																						
<p>PLEASE ACKNOWLEDGE THIS ORDER WITH DEFINITE DATE OF SHIPMENT. NO GOODS RECEIVED WITHOUT SHIPPING MEMO. ALL GOODS MUST BE MARKED PLAINLY WITH NAME OF CONSIGNOR.</p>																						
PURCHASE ORDER																						

Purchase order of one of the prime contractors operating under CPC, requiring report of delivery schedule on CPC-2 form.

9. The mills, having previously been advised of the exact amounts of material that would be ordered under all prime certificate numbers, fill the orders in the months specified and report to the proper Material Branch the total of material shipped.



WALTER H. HALLSTEEN

THE essence of effective procurement for the manufacture of war equipment is proper planning and scheduling—scheduling that will keep the production line operating at full speed ahead to meet delivery dates, without delays due to a lack of necessary material, and at the same time will achieve this end without building up large stocks of material and supplies, procured in advance and lying idle in the store room while other equally essential industries are clamoring for the self-same goods to go on with their own manufacturing programs. It is quite probable that the next step in national control over materials will be some such form of scheduling in advance, covering the major items of war production. That would be a stupendous task, involving an enormous amount of detail. It could be avoided if each manufacturer took upon himself the responsibility of seeing that these rules were observed, maintaining his own schedules without handicapping other producers. In some plants this is now being done, with excellent results.

Here is a plan that has been worked out at the Ilg Electric Ventilating Company, Chicago, on one of its larger orders, and which has proved highly successful.

The order in question called for a number of identical units, deliveries being scheduled over a period of months running through January, 1943. If the entire quantity of material had been ordered for July, when production started, or as soon thereafter as possible, there would have been a problem of storage at the plant, and what is more serious from the viewpoint of the war effort, some of these materials would have been tied up in idle inventories two to six months when they could have been usefully applied in other plants.

The first step was to work out a production schedule to meet the specified dates for completion and delivery of the units on a monthly basis. This schedule of course indicated when the various units must go into production in order to meet the delivery promise; the materials schedule naturally followed these requirements of the starting and progress of manufacture.

The next step was to make out a detailed bill of materials for each unit and for the contract as a whole, as the basis for issuing the purchase orders and arranging subcontracts. Each item was separately considered from the standpoint of (a) the manufacturing schedule, (b) total quantities involved, and (c) manufacturing process, set-up, etc. Thus, while the ideal theoretical

SCEDULING PURCHASES AND DELIVERIES FOR WAR PRODUCTION

A simple system of visual control that helps to keep war orders up to schedule without tying up material in inventories

schedule of procurement would have had each item coming in regularly, in balanced quantities, over the entire life of the contract, this plan had to be modified in some instances. For instance, some small special parts could be manufactured economically only by running off the entire lot at a single set-up of machines, and would require delivery of the total quantity of material at the beginning of the run. On other materials, economical ordering and shipping quantities represented two or three deliveries over the manufacturing period. On some, a monthly or semi-monthly schedule was practicable, so that the material moved virtually directly to the production line, with minimum inventories at any given time. The purchase orders and subcontracts were arranged on this basis, as representing the best schedule consistent with good manufacturing practice and with the minimum advance procurement of materials. It was impressed upon all suppliers that the delivery dates asked for were an honest statement of requirements, and that they would be expected to meet these promises.

As soon as the purchase orders were issued—more than 200 separate items being on order—each order was transferred to a set of cards according to the deliveries required and promised in each month from July through January. If deliveries were expected in each month, seven cards were made out; if deliveries were to be made only in July, September, and December, only these three cards were used.

The cards are plain 3 x 5 index cards, with a hole punched in the center of the narrow side. A distinguishing color was selected for each month: yellow for July, green for August, salmon for September, manila for October, blue for November, pink for December, and canary for January. The name of the month is printed in bold type at the head of each card, with spaces below for purchase order and requisition number, name of supplier, description of the item, and remarks. At the bottom of the card is a record of the applicable priority rating, the date when delivery is wanted (taken from the schedule) and the delivery promise (from the supplier's acknowledgment). All of this information can be entered when the card is originally made out. The last two spaces are for the entry of quantities as received, and for completion of that part of the order represented by this particular monthly card.

A large piece of wallboard, about nine feet wide and four feet high, was hung in the office of Purchasing Director W. H. Hallsteen, with eight rows of small books on which the cards were hung. Each complete set of cards was placed on one hook, with the earliest (July) card on top and the others in order beneath.

(Continued on page 130)



When Seller's GUARANTEE IS VALID

By LEO T. PARKER

Attorney at Law
Cincinnati, O.

A MAJORITY of Purchasing Agents know that warranties are legally classified as "*expressed*" and "*implied*". An expressed guarantee is effective where the buyer and seller mutually agree to the exact terms of the warranty. In other words, an expressed guarantee is one written or spoken in clear and plain language. Therefore, when the litigation involves an expressed guarantee the court refers to the written guarantee, or testimony of the oral guarantee, and decides whether the testimony proves that the seller delivered merchandise whose quality equals the standard specified in the expressed guarantee.

An implied guarantee arises under circumstances where the seller does not make a definite or expressed warranty, but the court may imply from the testimony that a warranty exists, irrespective of the *contrary* contentions of the seller. This occasion may arise when the character of a contract, or the intended use of the merchandise, is such that the purchaser is *compelled* to rely upon the honesty of the seller. Under these conditions the court may *imply* a warranty on the part of the seller to the effect that he will supply goods having a pre-determined standard of quality and suitable for the intended purposes of the buyer known to the seller when the sale contract was made.

What Is Warranty?

Warranty has been defined as an express or implied agreement, collateral but annexed to or an incident to the agreement to transfer the title, by which the seller undertakes to vouch for the title, quality or condition of the thing sold. However, it is important to note that a warranty can be given *only* by a seller personally, or through authorization to the seller's agent or representative. If the seller does not ratify a guarantee extended by his salesman such guarantee is void.

For example, in *Broer v. Fenton's*, 4 NW 2d, 416, reported July 8, 1942, it was shown that a purchaser sued a manufacturer to recover damages which he alleged he sustained because the purchased merchandise failed to conform with the oral guarantee given by the manufacturer's agent and salesman. Since the purchaser failed to prove that the agent was authorized by the manufacturer to give guarantees, the higher court refused to hold the manufacturer liable, and said:

"The goods were purchased upon a written order, signed by appellant (purchaser) and the salesmen, which required appellee (manufacturer) to ship the goods. It contained no reference to any warranty. Ordinarily, for a ratification of an unauthorized act of an

agent to be binding, the principal must have full knowledge, at the time of ratification, of all the material facts and circumstances relating to the unauthorized act."

With respect to the legal effect of a purchaser paying money directly to the seller's agent, this court said:

"Thus the receipt of purchase money will not have the effect of a ratification of an unauthorized warranty unless received or retained with knowledge that the agent had given the warranty."

This case presents unusually important legal information because very frequently Purchasing Agents rely on the verbal or written statements of seller's salesmen or representatives. In other instances purchasers contract with salesmen believing that the salesman's employer is obligated to fulfill the terms of the contract. In view of the modern law a traveling representative or salesman is merely a "special agent" who, legally, has authority *only to solicit and accept* orders which, however, are *not binding* on his employer until approved or accepted by the salesman's employer.

Therefore, unless there is either an expressed or implied agreement between a purchaser and a salesman's employer to the effect that the salesman is authorized to bind his employer, the latter is not legally bound by any contracts made by the salesman, unless the employer actually approves such contracts and agrees to fulfill the obligations assumed or promised by the salesman.

Salesman's Guarantee Valid

Few Purchasing Agents actually are able to determine when and under what circumstances a salesman's employer is liable on guarantees made by the salesman.

First, it is important to know that if an employer writes to a prospective purchaser and informs him that he agrees to be bound by contracts and guarantees made by his salesman, the employer is bound by any and all contracts made by his salesman, which relate to the merchandise ordinarily sold by the employer. On the other hand, although an employer writes to a prospective purchaser a letter of this nature, the employer is *not liable* on any contract or agreement which is outside the scope of the salesman's authority. Therefore, the employer would not be liable on a contract made by the salesman to borrow money; lease real property; distribute merchandise in unusual channels; collect money from the purchaser for goods sold; or other contracts or agreements not in the regular scope of an ordinary salesman's duty.

Notwithstanding these established points of law a seller may increase the ordinary authority of his salesman by performing any act, making any statement, or doing *anything* that *leads* the purchaser to believe that the salesman has increased authority to make or complete valid contracts of sale. This is so because any employer may authorize an agent to make valid contracts whereby the employer renders himself liable for all acts, contracts, agreements, and statements made by the salesman within the scope of the employment.

Various higher courts have held that where an agent, salesman, or other representative signs a note, contract, or other written instrument, or extends an oral guarantee, when undertaking to bind his employer and without authority to do so, such act imports fraud or culpable negligence, and fixes on the guilty salesman responsibility for the injury or damage that may result from his act. Obviously, in order to hold a salesman liable on an unauthorized guarantee the testimony must prove that in the past the employer had not authorized the salesman to make guarantees and, that the employer had not been accustomed to ratify such guarantees.

New Warranty Laws

Formerly it was generally held by the higher courts that the existence of an express warranty excluded all implied warranties. However, since the enactment of the Uniform Sales Act, in many states, at least the recognized rule has been that the implied warranty rule exists unless it is excluded by express language or by necessary implication. In other words, although certain state Legislatures have enacted laws intended to include, under all circumstances, an implied guarantee on purchased merchandise, yet modern law, as upheld by late higher courts, is: An implied warranty may be eliminated or rendered void by a clear provision in an expressed guarantee.

On the other hand, under no circumstances may a purchaser retain in his control for an unreasonable period the subject of the sale which he subsequently demands that the seller take back and cancel the contract of sale. And, further, and most importantly, if a purchaser fails to return unsatisfactory merchandise within the time limit specified in an expressed guarantee contract such purchaser immediately becomes obligated to fulfill *all obligations* assumed in the contract of sale.

For example, in *Frick Co. v. Wiley*, 162 SW2d 190, reported June 30, 1942, the testimony disclosed that a contract of sale contained a warranty that the subject of the sale was well built, of good material and, when properly operated would perform as well as any other machine of the same size and rated capacity. However, the expressed contract did not provide that an implied guarantee was rendered void, but it contained a clause to the effect that if the merchandise was defective or failed to satisfy the purchaser the latter would return same to the seller within five days.

Further testimony proved that the machine was delivered to the buyer in June. Soon afterward he notified the seller that he considered the machine unsatisfactory. However, the buyer did not return the machine or any of its parts to the seller. On the contrary, he continued to use it for several months contenting himself with notifying the seller of what he considered its inability to perform properly and accepted the sporadic attempts of the seller's representatives to adjust it. The seller sued the buyer for the full purchase price. The higher court held in favor of the purchaser on the grounds that under a state law the usual implied warranty was effective. However, it is interesting to observe that the higher court reversed this verdict and held the buyer entitled to recover the full purchase price. This court said:

"It is an ancient rule, even though the contract of sale be silent on the subject, that a buyer who seeks to rescind an executed sale must elect to take that action promptly after discovering the defects, and, unless prevented by the vendor from so doing, tender, and offer to restore the property sold. Otherwise, he is confined to an action for damages for breach of warranty, the measure of which is the difference between the market value which the article would have possessed had it been as represented, and its actual value, plus special damages in extraordinary cases. If the appellee had complied with the conditions prescribed by the contract, it would have been immaterial whether he had sued on the express or the implied warrant."

In other words, notwithstanding provisions of state laws, a purchaser becomes obligated to pay the full contract price if he neglect to fulfil the terms of the contract of sale with respect to the time limit for returning the subject of sale, in event the latter believes the merchandise does not conform with the expressed guarantee.

On the other hand, if an express warranty relates to its function or quality not essential to the proper performance of the work which a machine is expected to accomplish, or to any other quality of merchandise not essential to the intended use of the goods then, under these circumstances, the failure of the purchaser to comply with the conditions prescribed in the contract, as precedent to his right to sue for a breach, will not preclude him from pursuing either of the alternative remedies ordinarily open to a buyer under a contract containing no express warranty.

When Agreements Are Separate

Frequently, a buyer and seller enter into an original contract for sale of merchandise and later another distinctive contract regarding the same merchandise is made. It is important to know that each contract stands upon its own footing unless it was agreed that the validity of the second contract was dependent upon the first contract. This law is especially applicable to guarantees.

For illustration, in *Barnett v. Kennedy*, 42 NE2d, 298, reported July 1, 1942, it was disclosed that a buyer and a seller entered into a secondary or supplementary written contract which provided that *no* warranties had been made by the seller unless indorsed on the contract in writing. There was no further mention of a guarantee in this contract. However, the original contract contained a clause in which the seller had guaranteed that the merchandise would meet specified standards.

After the purchaser had used the subject of the sale for a few weeks he discovered that it would not perform satisfactorily and he notified the seller to this effect. Soon afterward the seller sued the buyer for the full amount due on the sale contract contending that under the above mentioned clause in the secondary contract the law pertaining to implied guarantee was not applicable. However, the higher court held that the purchaser was entitled to return the subject of the sale and recover back from the seller the amount previously paid to the latter.

The court explained that the implied guarantee was not nullified by the provision in the secondary contract and that, therefore, the implied guarantee was effective.

Therefore, the outcome of a litigation involving an implied guarantee depends entirely upon the court's interpretation of the original intentions of the parties as to whether at the time the contract was completed, neither contemplated an implied guarantee, or particularly whether the purchaser forfeited his rights under an implied guarantee. Obviously, a purchaser may agree to relinquish his ordinary rights to an implied guarantee providing in doing so he was not deceived by the seller.

A purchaser generally is successful in winning a litigation involving an implied guarantee, if he introduces testimony to prove that the merchandise or equipment positively failed to give "reasonable good service" in consideration of the purchase price. Moreover, this is always true, if the seller knew the intended uses of the merchandise and the purchaser relied upon the seller's good judgment to supply merchandise suitable for the intended purposes.

See the leading case of *George v. Karley*, 150 NW 12. Here it is disclosed that a company agreed to install equipment with accessories. The purchaser refused to pay for the same on the contention that its quality was not sufficiently good to perform satisfactorily.

The seller filed suit to collect the amount due, but the purchaser introduced testimony to the effect that the company's agent knew the intended uses of the

equipment. In view of this evidence the court held the purchaser not required to pay for the equipment, saying:

"If he (purchaser) goes to a manufacturer describing the kind of work to be done or the result he desires to accomplish and such manufacturer or dealer professes to be able to supply an engine or machinery which will do it, then there is an implied warranty that the machine or thing so furnished is reasonably adapted to the work for which it is procured."

On the other hand, if a seller does not know the intended uses of the equipment or merchandise he is not liable on an implied guarantee. This is so because a guarantee never is effective unless either the seller knew the intended uses of the purchased merchandise or expressly warranted the quality.

Purchaser Cancels Contract

If after agreeing to a contract of sale, the purchaser decides to cancel the contract, he may do so providing he has definite proof that the seller will deliver merchandise which will not conform to the expressed or implied guarantee. Furthermore, the purchaser may, without liability, cancel the contract if the seller delays unreasonably in making delivery.

A review of recent leading higher court cases disclosed that a seller may without liability delay delivering purchased merchandise *only* under the following circumstances:

- (1) When the buyer actually consents verbally or in writing to the delay.
- (2) When the buyer orders a change in the original agreement or specification which actually delays the seller in making the delivery.
- (3) When, after the shipment is delayed, the purchaser agrees to accept the delivery.
- (4) When the purchaser performs an act which terminates the seller's obligations.
- (5) Where an obligation mutually agreed upon by the contracting parties results in the right of the seller to delay shipment.
- (6) When the purchaser breaches the contract before the date for making the delivery.

On the other hand, if the seller does not delay the delivery, and he otherwise conforms with the law pertaining to guarantees the purchaser cannot, without liability, breach the contract of sale. In other words, if the seller fully complies with the terms of the contract the purchaser can be held liable in damages if he fails to accept and pay for the subject of the sale.

Notwithstanding these well established points of the law, there are records of higher court cases in which the purchaser refused to make payment on the belief that the goods would not conform with an expressed or implied warranty and the seller actually filed suit and collected the amount due and then later the purchaser discovered that the goods were not as guaranteed. The purchaser sued the seller and upon introduction of testimony to the effect that the seller violated the guarantee the court reversed the previous verdict and held the seller fully responsible in damages to the purchaser.

This situation may arise when, for example, the character of the merchandise is such that several weeks or months, or even years use, may be required on the part of the purchaser to determine the exact quality of the merchandise. The law does not restrict the purchaser in filing a suit of this nature, except that he must file it within a "reasonable" period after he discovered that the goods did not meet the requirements of the seller's guarantee.

P. R. P. CONTROL in the PURCHASING OFFICE

A simple method of adjusting purchase and production schedules to P.R.P. allotments

By **FRANK A. JEPSON**
Purchasing Agent
Acushnet Process Company

IN these days, materials are the controlling factor in setting up a plant operating schedule. It is no longer a case of planning a production schedule and procuring the materials and supplies needed to carry it through, but exactly the reverse. The production executive is limited by what is available and when it may be procured; the Purchasing Agent has the responsibility of arranging his purchases most effectively within the limitations of allocated amounts and permissible deliveries from month to month. It is a situation calling for the closest cooperation between the two.

Any company operating on the Production Requirements Plan, with stated quantities allowed in each calendar period, is confronted with this problem of controlling purchases and production to conform with these regulations. At the outset, it is likely to cause considerable confusion, and we have endeavored in our plant to set up a simple record system that we may know at all times just what our position is in respect to each commodity.

Under the Production Requirements Plan, we are permitted to receive up to 40% of the total quarterly allotment during the first month of the quarter, 40% during the second month, and 20% during the third month. These percentages are of course accumulative. In the event that no purchase orders are issued on a commodity during the first month, we are allowed to receive 80% of the allotment in the second month and 20% in the third month. If it is not necessary to receive any during the first or second month, the entire 100% may be received in the third month.

In addition to this regulation of what portion of the total amount can be received from month to month, there is also the factor which controls the amount of



Frank A. Jepson

material received by the preference rating percentages that have been assigned to the PD-25A authorization.

In an attempt to control these quantities, we have set up two forms. One of these, which we call Form A-2, covers operating supplies. This is wholly on a dollar basis. It is relatively simple, due to the fact that there is no limitation on how much of each preference rating can be received during any one month. Consequently, it is a straight bookkeeping entry of orders issued, according to preference rating, with cumulative totals in each preference rating division and a cumulative grand total of dollars spent to date. This is supplemented by an inverted balance of unused dollars available, obtained by subtracting the dollars spent from the total permissible amount.

A specimen form, with illustrative entries, is shown herewith. The total amount allowed under each rating is entered both at the head and at the foot of the appropriate column. In the last two columns, which carry the grand totals, these entries are reversed; i.e., the total amount of expenditures starts with zero at the top of the column and the allowable total is entered at the bottom; the unused balance of the appropriation starts with the full amount at the top, and is entered as zero at the bottom, when the entire amount will presumably have been expended.

The amount of each purchase is entered in the applicable column, and extended to show the cumulative totals, each entry, regardless of rating, being added to the "Total to date" and subtracted from the "Unused" column. This provides a quick check in that the last total shown in any column must not exceed the amount shown at the foot of the column, and the sum of the last two columns is always equal to the total amount

assigned. It can be determined at a glance just how much more can be expended for the period.

The second form, known as A-3, deals with the control of allocated materials based on a quantity unit. This is a little more complicated as it deals with the percentage allowed each month as well as the percentage allowed by preference rating. In order to readily find the commodity that ties in with our P.R.P. allocation, we have numbered all the commodities on the P.R.P. authorized copy in sequence, and these same numbers are used on Form A-3 as a cross reference. Then instead of filing these forms by commodities, they are filed numerically in the same order as shown on the P.R.P. sequence.

A specimen of Form A-3, with illustrative entries, is also shown herewith. It is divided into two parts, the left half for recording orders and the right hand for receipts. Entries are made separately for orders in each preference rating group, this tabulation covering the entire quarterly period. The information shown includes the date and number of the purchase order, the quantity and the cumulative total to date, which must not exceed the allowable percentage, shown in terms of percentage and quantity at the foot of each column. We have found that where a commodity can be purchased on all three of the ratings assigned, we have had better results by consuming first the total quantity allotted on the lowest preference rating, then the quantity on the next lowest rating, etc. This is less confusing than to use a part of the quantity on each rating every month, and try to control purchases by both month and rating. This, of course, is not possible in all cases.

The right side of the sheet is divided according to the first, second and third months of the quarter, showing the totals which can be received during each month—namely, 40%, 40%, and 20% of the total quantity available. The entries include the date of receipt, the purchase order number, applicable preference rating, and quantity received. A cumulative total of quantity received to date is also shown, and this must not exceed the permitted total for the month. In the event that the receipts during the first or second months are less than the quantity allowed, the amount of the difference is entered in red pencil as a credit balance which can be used to increase the allotment for the succeeding month.

Provided that it is necessary to receive the full quantity that was allocated, the grand total of

allocations by preference rating should be equal the total quantity received for each month and for the three months.

It has been our experience that the P.R.P. plan of purchase and control is very satisfactory, and that the provision for month-to-month deliveries of specified percentages is flexible enough to permit an even schedule of purchases and operation, at the same time that it assures all companies of similar advantages in receiving a fair share of the scarce materials available. It is obvious that no concern could or should consume their entire three months' allotment in any given period of one month, and to purchase on that basis would impose a hardship on other companies entitled to equal consideration. The problem is one of cooperation and adjustment. We have found these two simple records of practical value in arriving at a workable control.

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"Let me put you straight on this, Jimson—a Ceiling Price
doesn't mean that the sky is the limit."



PURCHASING POST-MORTEMS

By CHARLES FORD

There's profit to be made from errors, provided you don't make the same mistake twice

SPEAKING of prunes: Not the slicked-up article of commerce our wives serve up to us when all else fails, each one looking as if just out of a shoe-shining emporium and all dolled up in red, yellow and blue cartons to masquerade as super-prunes.

No: I refer to the plain, simple, lowly prune of our ancestors—the prune that made the boarding house famous. They used to come from Turkey or Asia Minor, in casks tipping the scales at over half a ton each, no allowance for worms. No retailer could ever handle a cask of prunes, so the wholesaler used to tip the cask on its side, bash in the head with an ax, spill the prunes out on a section of floor not too splintery, and shovel them into grain sacks for easy handling. It wasn't a sanitary thing to do, nor even neat, but what the hell? The prunes maybe were a little mouldy anyhow, wiped out some hoof-tracks and accumulated some slivers from the floor; but what the boarding house keepers didn't know didn't hurt them.

A Corner in Prunes

In a big wholesale food house in the west, a bright young man had just been promoted to head the department of dried fruits. Prunes rated being called dried fruit, even if they did look more like crushed stone for roads. This aforesaid young man was clever, honest, and ambitious; and he was all set for a killing in the dried fruit business.

He had no more than established diplomatic relations between his new chair and the seat of his trousers, than ominous rumors began to filter through about Johnny Turk's prune crop. It sounded as if everybody was afraid the prunes would all be gone, and our friend's stock wasn't too reassuring; so he got very busy. He was careful, however. He interviewed everybody who was supposed to know something about prunes, got all the information he could from brokers and others in the trade, spent a sizeable wad cabling across to see what he could get at first hand, talked it over with his brother buyers, got it past the junior member of the firm who vised heavy purchases; and proceeded to accumulate prunes. He had to pay high for some of them, but averaged pretty well, and soon had about half a ship-load of prunes afloat, bound for the land of the free and the boarding house breakfast.

Then came the pay-off. Rumors floated about, cables began coming in, and it looked as if the wily Turk had slipped something over. Our friend wasn't the only one who got hooked; the whole food-house fraternity evidently had agreed that the boarding houses must be saved.

The market went to hell in a hand-basket.

Our young friend spent a sleepless night and decided that as long as he had to face the music, the sooner the quicker. Next morning when the head of the

(Continued on page 194)

TAKE CARE OF YOUR



WEAR PROPER GLOVES FOR EACH JOB. Be sure to wear the **right kind** of gloves. Acid gloves should be heavy gauge to prevent any danger of torn rubber or the slightest penetration of acid. High voltage linemen and industrial workers who have heavy, rough work should guard their hands by wearing gloves made of thick, strong rubber. Wear light-weight gloves where there is less danger of tearing, snagging, heavy wear and where full "finger-tip feel" is desired for the handling of small objects. Gloves with a 9 inch gauntlet (18" overall glove length) are recommended when working with acids or other active agents where wrist and forearm must be fully protected.

WEAR PROPER SIZE GLOVES. Misfit gloves are another cause of a high mortality rate in rubber gloves. Gloves that are **too large** will catch on sharp, jagged objects or in moving machinery. Gloves that are **too small** will tear easily or be punctured by finger nails while being put on or taken off. Rubber under tension will rip much more easily if pierced by a sharp object than rubber will that is in normal shape. Tight gloves will also cause finger-tip tension and hand fatigue.



ROTATE GLOVES IN USE. Keep two pairs of rubber gloves available for use and wear each pair every-other-day. One pair worn continuously day after day will wear out much more quickly than if given a 24 hour rest period between wearings.



WRONG SIZE GLOVE. This shows an extreme case of where an improper size rubber glove is being used on a job, impairing efficiency.



R U B B E R G L O V E S . . .

A picture lesson in conservation

Rubber gloves represent valuable material. They are getting scarce. Conserve them by taking these precautions in wearing and using them. Make it a habit to give them proper attention and care when not in use. Finally, see to it that they are turned in for reclamation when their useful life is over.

(Photos by courtesy of The B. F. Goodrich Company)



KEEP GLOVES AWAY FROM SOLVENTS. Industrial Glove service may be reduced to but a few hours if care is not taken to keep them away from, and the surface cleaned of, oils, greases and other natural enemies of rubber. These agents in contact with rubber will cause it to swell out of shape, become tacky and soft and lose all of rubber's capacity to stretch and return to normal shape.

CLEAN GLOVES THOROUGHLY AFTER USE. To make sure that no harmful materials remain on glove surface, wash each glove thoroughly before storage. It is recommended that luke warm water and good grade soap be used. Be sure to rinse off all soap after cleansing because some soaps have a high oil content which will also harm rubber. Rinse in cool or cold water. Then hang them up carefully to dry. Gloves in a hanging position will dry faster and dry well inside and out. STORE in a cool place away from direct sunlight. Do not attempt to dry gloves hurriedly on a hot surface—this will cause premature aging and quick deterioration.



USE TALCUM TO PREVENT TACKINESS. Dust inside of gloves well with talcum each time they are removed. Hand perspiration clings to gloves and will tend to make inside walls tacky if moisture is not dried promptly. Talc will also make the surface smooth so hands will slip in easily. Be sure hands are dry—rubber gloves are extremely hard to put on if hands are moist or damp.

DON'T HANG UP DIRTY GLOVES. These rubber gloves are being hung up dirty, and the accumulation of material on them is likely to attack the rubber, cut short its life. This is certain if the glove has been used around grease, oils or solvents, natural enemies of rubber.





PEEL GLOVES OFF THE HAND — LIKE THIS. Light-weight rubber gloves should not be pulled off by finger tips like leather or cloth gloves — simply take hold of cuff and **peel** them off **inside** out. Rubber Gloves create a suction effect when finger-tips are pulled and may snap off at finger ends.

DON'T PULL OFF THIS WAY. This illustrates why you should never pull off a pair of rubber gloves in the same way you do your dress gloves, for example. The reason is that by exerting pressure on the fingers the glove is put under strain and may tear. The right procedure is shown in the preceding picture.



PATCHING GLOVE TEARS OR SNAGS. It is recommended that each user investigate the practicability of patching the gloves he uses when tears or snags develop. It is not considered safe to patch fingers or palms of Electricians' or Acid Gloves — the hazard is too great. However, in many cases and for many types of industrial work, patching is practical and provides many extra months of glove service. The use of patched gloves is shown here.

RUBBER SALVAGE BOX. Install a salvage box where wornout rubber gloves and other rubber articles may be discarded. This will insure their being saved and returned to a rubber goods manufacturer for reclaim, and prevent a careless cleanup man from burning or destroying them.



THE MARKET PLACE



Quotations on basic materials for carloads or mill shipments, with comparative prices quoted one month ago and one year ago
(*denotes ceiling price)

ACIDS

	Oct. 20 1941	Sept. 21 1942	Oct. 20 1942
Acetic, 28%, cwt.	3.18	3.38	3.38*
Muriatic, 18 deg., cwt.	1.50	1.50	1.50
Nitric, 36 deg., cwt.	5.00	5.00	5.00
Oxalic, Works, cwt.	11.25	11.25	11.25*
Phenol Works, cwt.	14.25	14.25	14.25
Sulphuric, 66 deg., ton	16.50	16.50	16.50



BUILDING MATERIALS

Brick, N. Y. dock, per M	12.00	13.00	13.00
Cement, f.o.b. plant, bbl.	2.15	2.15	2.15
Glass, single B. per box	2.98	3.14	3.14
Lime, pulv., N. Y., per ton	17.00	17.00	17.00
Nails, wire, per keg	2.55	2.55	2.55*
Oak flooring, rep M. ft.	89.00	85.00	85.00
Southern pine, K.C., per M. ft.	40.00	52.50	52.50*

CHEMICALS

Alcohol, denatured, gal.	.38	.65	.65*
Alumina Sulf., Comm., Works, cwt.	1.15	1.15	1.15
Ammonia, aqua, 26 deg., drums	.02 $\frac{1}{4}$	.02 $\frac{1}{4}$	.02 $\frac{1}{4}$
Arsenic, White, cwt.	4.00	4.00	4.00
Red, cwt.	nom.	nom.	nom.
Barium Chloride, ton	77.00	77.00	77.00
Carbonate, ton	56.50	56.50	56.50
Benzol, pure gal.	.14	.15	.15
Borax, powd., ton	48.00	50.00	50.00
Chlorine, cwt.	2.00	2.00	2.00
Formaldehyde, lb.	.05 $\frac{1}{4}$	.05 $\frac{1}{4}$	.05 $\frac{1}{4}$ *
Glycerine, drums, lb.	.19 $\frac{1}{2}$	.18 $\frac{1}{2}$	.18 $\frac{1}{2}$ *
Lead, acetate, white, broken cwt.	12.50	12.50	12.50
Nickel sulphate Double	.13	.13	.13
Single	.13	.13	.13
Potash Caustic, solid	.06 $\frac{1}{4}$	.06 $\frac{1}{4}$	.06 $\frac{1}{4}$
Permanganate	.20 $\frac{1}{2}$	.20 $\frac{1}{2}$	.20 $\frac{1}{2}$
Sal Ammoniac Gran. white, cwt.	4.50	4.50	4.50
Gran. gray, cwt.	5.75	5.75	5.75



COAL & COKE

Anthracite, stove, mines	6.75	6.75	6.75*
Bituminous, Cleaf, mine run..	2.70	2.70	2.70
Beehive Coke, Connellsburg..	6.00	6.00	6.00*
By-product Coke, Newark	12.40	12.45	12.45*

FERTILIZERS

Muriate potash, 62-63%, per unit K 20	.53 $\frac{1}{2}$	.53 $\frac{1}{2}$	.53 $\frac{1}{2}$
Sulphate potash, 90-95%, bags	36.25	nom.	nom.
Nitrate soda, bulk	27.00	27.00	27.00
Sulphate ammonia, dom., bulk.	29.00	30.00	30.00
Steamed bonemeal, 3 and 50 per ton	37.50	37.50	37.50

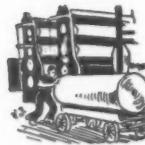
GRAINS

Barley, malting, bu.	.79 $\frac{1}{2}$	.89 $\frac{1}{4}$	.84 $\frac{3}{4}$ ↓
Corn, No. 3 yellow, bu.	.65 $\frac{1}{4}$	.83	.76 $\frac{3}{4}$ ↓
Oats, No. 2, white, bu.	.43 $\frac{3}{4}$	.53 $\frac{1}{4}$	.48 $\frac{3}{4}$ ↓
Rye, No. 2, Western, bu.	.76 $\frac{3}{4}$	.87 $\frac{3}{4}$	.82 $\frac{7}{8}$ ↓
Wheat, No. 2 hard winter, bu.	1.08	1.19 $\frac{3}{4}$	1.18 ↓
Flour, spring patents, 196 lbs.	6.35	6.55	6.45 ↓

HIDES

Light native cows, lb.	.15	.15 $\frac{1}{2}$	.15 $\frac{1}{2}$ *
Heavy native steers, lb.	.15	.15 $\frac{1}{2}$	.15 $\frac{1}{2}$ *
Calfskins, 5-7 lbs., per skin..	1.65	1.65	1.65*

	Oct. 20 1941	Sept. 21 1942	Oct. 20 1942		Oct. 20 1941	Sept. 21 1942	Oct. 20 1942
IRON & STEEL							
Pig iron, foundry No. 2	24.00	24.00	24.00*				
Pig iron, basic, valley	23.50	23.50	23.50*				
Cast iron pipe, New York ...	52.20	52.20	52.20*				
Forging billets, Pittsburgh base	40.00	40.00	40.00*				
Sheet bars, Pittsburgh base ..	34.00	34.00	34.00*				
Wire rods, Pittsburgh base ..	40.00	40.00	40.00*				
Cold rolled sheets, cwt., Pittsburgh base	3.05	3.05	3.05*				
Hot rolled annealed sheets, cwt., Pittsburgh base	2.10	2.10	2.10*				
Cold rolled strips, cwt., Pittsburgh base	2.80	2.80	2.80*				
Hot rolled strips, cwt., Pittsburgh base	2.10	2.10	2.10*				
Tin plate, cwt., Pittsburgh base	5.00	5.00	5.00*				
Bars, cwt., Pittsburgh base ..	2.15	2.15	2.15*				
Shapes, cwt., Pittsburgh base	2.10	2.10	2.10*				
Bright wire, cwt., Pittsburgh base	2.60	2.60	2.60*				
Ground shafting, cwt., Pittsburgh base	2.65	2.65	2.65*				
Rails, ton, Pittsburgh base ..	40.00	40.00	40.00*				



METALS, NON-FERROUS

Aluminum, virgin ingots .....	.15	.15	.15
Antimony, American, spot ..	.14	.14	.14
Copper			
Electrolytic .....	.12	.12	.12*
Chromium, 97%, spot ..	.84	.84	.84
Lead, E. St. Louis .....	.057	.0635	.0635*
Nickel, ingot .....	.35	.35	.35
Quicksilver, flask	195.00	199.22	199.22*
Silver, bars, N. Y., per oz ..	.52	.44½	.44½
Tin, Straits, spot .....	.52	.52	.52*
Zinc, E. St. Louis .....	.0825	.0825	.0825*

METAL PRODUCTS

Copper, wire, bare, cwt. ..	15.375	15.375	15.375
Yellow brass sheets, high ..	19.48	19.48	19.48



NAVAL STORES

Turpentine, gal. ....	.85½	.68½	.70½↑
Rosin, Grade B, cwt.	3.14	3.60	3.85 ↑

PAINT MATERIALS

White lead, dry, basic, carbon- ate .....	.07½	.07½	.07½
Carbon black .....	.03425	.03625	.03625
Shellac, orange .....	.30	.36	.36*
Linseed oil107	.137	.135 ↓

	Oct. 20 1941	Sept. 21 1942	Oct. 20 1942		Oct. 20 1941	Sept. 21 1942	Oct. 20 1942
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PAPER

News, roll, ton	50.00	50.00	50.00*
Book, M. F., cwt.	7.40	7.50	7.50*
Wrapping, Northern, cwt.	5.25	4.75	4.75*
Wrapping, southern, cwt.	4.50	4.50	4.50*
Wrapping, manilla, jute, cwt.	8.75	10.50	10.50*
Chip board, No. 1, ton	45.000	45.00	45.00*
Wood pulp, mech., ton	36.00	46.00	46.00*
Wood pulp, sulph., No. 1, cwt.	3.17½	3.17½	3.17½*



PETROLEUM

Crude, Mid-Continent	1.17	1.17	1.17*
Crude, Penna.	2.30	2.55	2.55*
Gasoline .....	.08½	.117	.117*
Bunker Oil C.	1.50	1.65	1.65*
Kerosene, 41-43 grav. ....	.053	.068	.068*
P. T. ....	.36	.36	.36
Penn. cylinder oil, 600 flash ..	.26½	.26½	.26½



RUBBER

Smoked sheets .....	.22½	.22½	.22½†
(† Rubber Reserve Co. selling price)			



TEXTILES

Cotton middlings, Galveston .....	.1568	.1841	.1868↑
Cotton yarns, 22s .....	.38	.43	.43
Print cloths, 38½", 64 x 60 .....	.07944	.08971	.08971*
Sheeting, 37", 48 x 48 .....	.09	.10375	.10375*
Wool, fine combing, ½-blood	1.07	1.15	1.15*
Worsted yarns, French 2-40s nom.	nom.	nom.	nom.
Worsted yarns, English 2-40s nom.	nom.	nom.	nom.
Silk, Japan, double ex. cracks	3.08	3.08	3.08*
Rayon viscose, 150, 40s .....	.55	.55	.55
Burlap, 10½-oz., 40" .....	.115	.11	.11*
Hemp, Manila .....	.10½	.10½	.10½

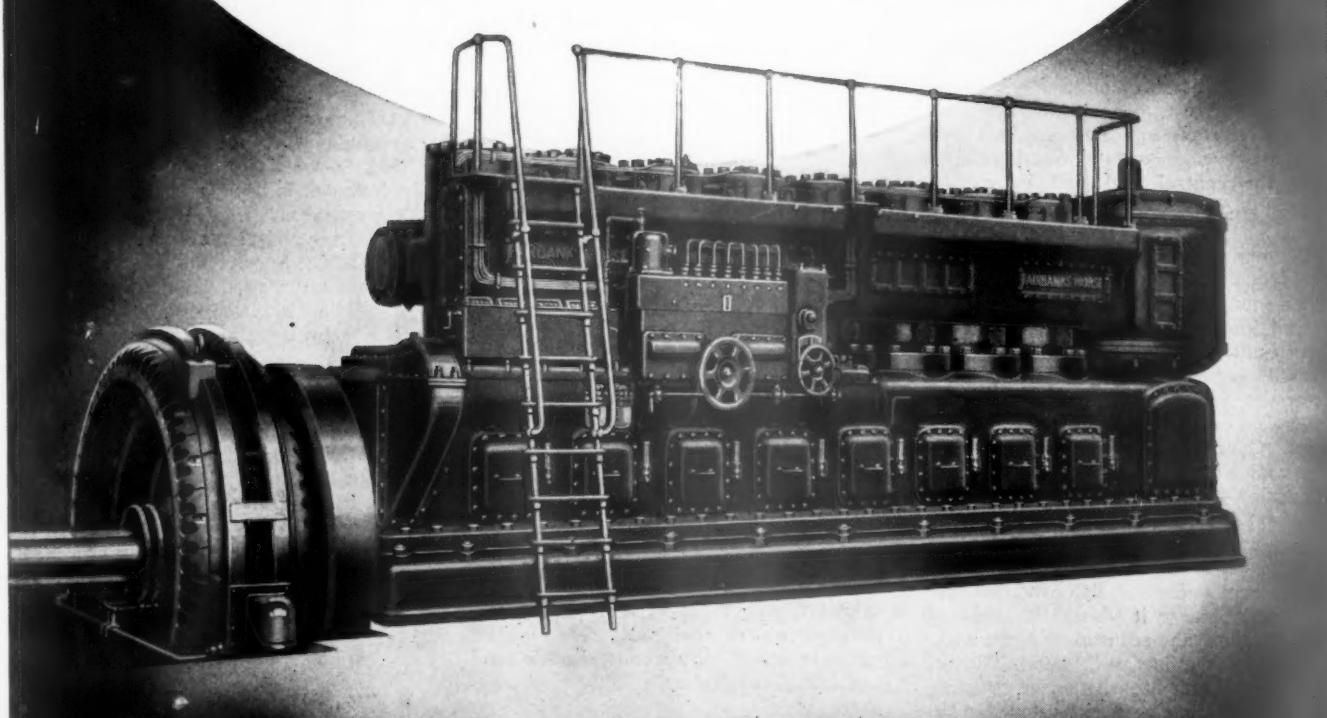
POWER

for High-priority Jobs

Do you need extra power to meet war production schedules? Then use your priority to buy Fairbanks-Morse Diesel-generators. They will assure you of uninterrupted power, low unit power costs, and freedom from peak

penalties . . . not only now, but in the future, too.

F-M power engineers, unbiased because the line includes all types and sizes, are ready to study your needs. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Illinois.



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DIESELS
MOTORS
SCALES
PUMPS

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New PRODUCTS & IDEAS

REMOTE CONTROL FOR WELDING



■ Hobart has developed a new remote control unit which is now a standard production feature of all welders offered for sale by the company. This improved control is protected fully from accidental breakage by a metal pull-out handle set over the control dial and by cushion springs on the back of the porcelain rheostat.

The new dial, it is believed, will increase weld qualities—especially welds made under modern high speed techniques. It is well known among operators that for best results, welding heat should be increased somewhat when using coated electrodes in changing from flat position to vertical or overhead positions, and vice versa. Operators are only human, however, and with many operators there is a temptation to "get by" without changing machine adjustment because such changes involve repeated trips between work and machine.

With remote control, this condition does not exist, because it places 100 steps of fine volt-amperage adjustment right within reach of the operator's hand. The remote control unit is easily set up by using an ordinary lamp cord extension to connect it to the machine.

In practice, some operators have learned to weld continuously with one hand—making heat changes with the other without even breaking the arc. On other applications, it is often possible to change electrode sizes and adjust the heat to meet weld conditions without going near the welding machine.

Even in factories, where machines may

be located comparatively near the work, the use of this remote control feature has been found effective in speeding production and improving weld quality—especially in the elimination of weld craters. On other jobs, welding machines may be compactly located near the ceiling to conserve floor space, while the operators located below the machines use the remote control for fine current settings.

The large outer control dial, shown in the picture, is the field rheostat which controls the differential compounds—while the remote control unit adjusts the open circuit voltage. 1000 combinations of voltage and current are possible with this control dial.

FLUX FOR GAS WELDING

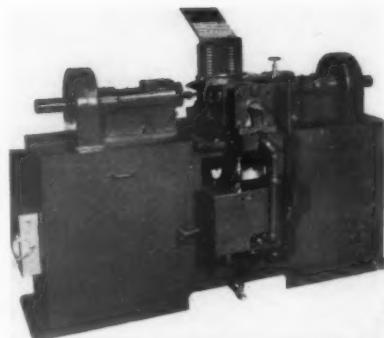


■ An improved, free-flowing flux for the gas welding of aluminum and aluminum alloys is now being manufactured by Park Stewart, Worthington, Pa. The manufacturer claims that as a result of improved methods of manufacture this product will positively not solidify or deteriorate.

This is being used to gas weld either wrought, cast or high tensile aluminum or aluminum alloys, of any size or shape where welding is possible. It is being widely employed in the aviation industry.

Packaged in a glass container, which prevents corrosion and protects the flux from moisture, this is available in a large number of sizes ranging from $\frac{1}{4}$ lb. to 25 lbs.

PROFILER USES AUTOMATIC FEED



■ Pines Engineering Co., Inc., Aurora, Illinois announces the addition of an automatic chute feed to the air chuck on their 2-spindle chute feed to the air chuck on their 2-spindle profiling machine. This attachment is being used for feeding such items as brass and copper primer tubes for boring and tapping operations on both ends at the same time. According to the manufacturer, production from these machines had been increased as much as 30 percent by the addition of this automatic feed.

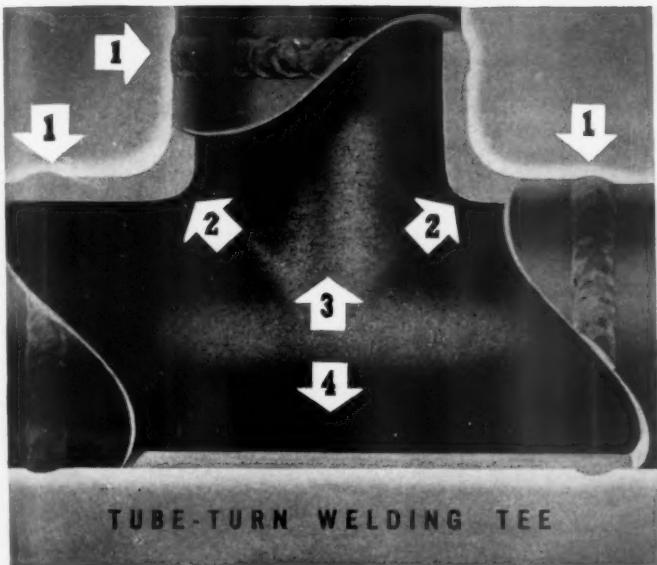
These profilers are being employed in defense production for burring, chamfering, facing, threading, centering, reaming and boring both ends of tubes or rods simultaneously for such important war items as bombs, tank tread tubes and pins, etc. Several of these profiling operations may be combined and performed at the same time, thus greatly increasing productive output and decreasing man hours.

VARIABLE SPEED DRIVE

■ A variable speed multiple V-belt-drive is announced by the Worthington Pump and Machinery Corporation of Harrison, New Jersey. The first of these to be made available is the model A which has a horsepower range of from one-third to three-quarters horsepower with a speed ratio of 16 to 1, that is, any speed from $\frac{1}{8}$ to twice the driving motor speed. This drive is said to be exceptionally com-

(Continued on page 88)

Why TUBE-TURN WELDING TEES provide strong, safe, easy-to-weld branch connections



(1) Easy circumferential butt welds cut installation time, make sounder, safer joints. (2) Easy sweeping curves reduce friction and pressure loss to a minimum. (3) Smooth inside walls assure even flow and add to the long life of the connection. (4) No accumulation of slag.

(1) Joining a branch into a main with an intersection weld makes a weaker, less sound connection. (2) Gaps and irregularities caused by uneven cutting must be filled by welder. (3) Sharp corners and jagged angles are poor piping practices. (4) Possible slag accumulation can impede flow and seriously injure valves.

8 REASONS FOR SPECIFYING TUBE-TURN WELDING TEES



- 1 Extra thickness at crotch reinforces where highest stress occurs.
- 2 Reinforcement along top of run adds needed strength here.
- 3 Reinforcement on sides—also a point of high stress gradually tapers toward end of outlet and bottom of run.
- 4 Longer outlet permits faster lining up and ample room for rod manipulation.
- 5 Ends machined to exact pipe wall thickness—easy to align and weld.
- 6 Increased thickness at bottom adds to full strength without excess weight.
- 7 Smooth inside walls, curved inner crotch and special manufacturing process assure even flow.
- 8 Size, material, thickness and name identified on permanent name-plate.

COMPARE the two cut-away illustrations above point by point for proof of the unmistakable superiority of welding tees.

It takes fewer man-hours and far less trouble to install a Tube-Turn welding tee into a piping system than to fabricate a branch connection, a vital factor in today's plant expansion and modernization for war needs. Other major advantages of these seamless welding tees are the greater strength, longer life, and smooth flow secured.

The design and construction of Tube-Turn welding tees add to the strength of the entire piping system by reinforcing these crucial points.



Tube Turns manufactures a complete line of welding fittings and forged steel flanges in all standard sizes and weights. Write for new complete catalog and valuable engineering data book No. 111. It's free.

TUBE TURNS, LOUISVILLE, KY. INCORPORATED

Branch offices: New York, Chicago, Philadelphia, Pittsburgh, Cleveland, Tulsa, Houston, Los Angeles, Washington, D. C. Distributors in all principal cities.

TUBE-TURN
TRADE MARK
Welding Fittings

**FOR FASTER FINISHING OF
hard to get at areas
Use THREE-M-ITE CLOTH
EVENRUN BANDS**



NO SLOW-UP HERE

when you use the correct type of abrasive for grinding or finishing. Three-M-ite Cloth Evenrun Bands are timesavers for use on hard-to-get-at areas, and because of their fast cutting qualities, long life and excellent final finish produced, they are meeting today's need for faster production.

Popular sizes $\frac{1}{4}$ " to $3\frac{1}{2}$ " diameters and widths of $\frac{1}{2}$ " to 3" in Grit No. 24 to Grit No. 320. Other sizes are also available.

If you haven't already experienced the timesaving features of Three-M-ite Cloth Evenrun Bands, why not secure a supply from your jobber today and put them to work on those hard-to-get-at areas.

WRITE FOR YOUR COPY OF THIS BOOK

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PI142

MINNESOTA MINING & MFG. COMPANY

SAINT PAUL

MINNESOTA

MFRS. OF 3-M PRODUCTS 3-M Abrasive Paper and Cloth Products—"SCOTCH" TAPES
3-M Elastic Cements — 3-M Wax and Sealer — 3-M Lap-
ping and Grinding Compound — 3-M Cutting and Finishing Compound — 3-M Roofing Granules



When writing Minnesota Mining & Mfg. Company please mention Purchasing

(Continued from page 86)
pact, ball-bearing equipped, and so designed that it can be operated in any plane. Further, it can be directly coupled to any standard motor and the output shaft can be run at motor speed, and is flexible enough to be applied to any type of machine within its power range.

An interesting feature of this drive is its mechanical, positive belt-tensioning device which automatically compensates for increased arc of belt contact which results from changing from low to high speeds. In this tensioning device no springs are required. A further feature is the fact that the drive need not be dismantled to change belts. According to the manufacturer other sizes are now being developed for 1 to 3 HP, 3 to 5 HP, 5 to $7\frac{1}{4}$ HP, and $7\frac{1}{2}$ to 10 HP.

While these drive units were originally intended for application to machine tools, they are already being successfully used on numerous other types of equipment.

PALLET CONSERVES STEEL



■ The Union Metal Manufacturing Company of Canton, Ohio, maker of steel skids, boxes, pallets, and other materials handling units, has announced a new product.

This new product is a sturdy pallet, consisting of top and bottom wood slats, reinforced with steel at the ends and in the center. Bolted construction permits easy replacement of the wood slats, while the steel ends protect the pallet from damage by power fork trucks.

Vital metal is thus conserved without sacrificing strength and all-around usefulness, and ease of handling is preserved. These new pallets are available in sizes to meet ordinary materials handling requirement.

MULTIPLE-ANGLE DRILL

■ The drilling head of this compact rotary drill can be set at any angle through 360° and swivels in two planes to afford complete flexibility. The 3-jaw chuck takes any size drill shank from $1/16$ " to $1/4$ ". The throttle lever control is so placed that operator's thumb rests close to point of application, contributing to steady, accurate drilling. Weight is less than 3 lbs.; overall lengths 9" to $10\frac{1}{2}$ ", according to model. This small but powerful unit made by The Cleveland Pneumatic Tool Co. of Cleveland, Ohio has many possibilities.

(Continued on page 90)



Enlist that Scrap

... FOR THE
DURATION

When you turn in your scrap *this month*, your obligation does not end. For the steel furnaces must run next month, too -- and the next -- and the next.

Steel production of eighty-five to ninety million tons of ingots a year calls for approximately 3,000,000 tons of scrap per month--about 750,000 tons a week--over 100,000 tons a day. Half of this comes from the industry itself, but the other half must come from the public.

Reduced to its simplest terms, if the steel industry is to produce steel at the rate and in the volume that our war program demands, then America must collect nearly **ONE POUND OF SCRAP EVERY DAY** for each man, woman and child in the nation.

You, the reader of this publication, have this clear, individual obligation: As a patriotic citizen and a responsible executive or workman, you must act to the extent of your ability to **KEEP SCRAP FLOWING** to the steel plants.

Do your part to enlist scrap for the duration.

THE YOUNGSTOWN SHEET AND TUBE COMPANY
YOUNGSTOWN, OHIO

WHY NOT TRY THIS YOUNGSTOWN IDEA?

Red-white-and-blue barrels like this stand on important street corners, in both business and residential districts of Youngstown, Ohio. They provide a convenient and tangible means of getting action from citizens, young and old, who are bombarded daily with radio, newspaper, magazine and other advertising urging them to turn in scrap.

That this is an effective idea is proven by the fact that two city trucks are kept busy every day, collecting scrap from these barrels and answering calls from householders who have other scrap to contribute, too large to go into the barrels. Perhaps YOUR city can try this plan, too.

This Company joins in the counter attack against accidents by subscribing to the National Safety Council's War Production Fund to Conserve Manpower.





Government has first call on READING-PRATT & CADY VALVES

★ *No man can face a more momentous decision than the one which requires him to forget his own immediate personal welfare. Members of the armed forces make such decisions daily. So must we who are far back of the battle lines. . . . It has not been easy to tell our old friends that for the time being we can only supply Reading-Pratt & Cady valves according to priorities and the needs of the government. But the fair and considerate response to that message has again demonstrated the willingness of American industry to adapt itself cheerfully to war conditions. . . . As individuals, as business organizations, as a nation we now tread the Victory road. . . .*

Reading-Pratt & Cady Valves are among the 137 products we build for Industry, Agriculture and Transportation, which are essential in peace, vital in war.



AMERICAN CHAIN & CABLE COMPANY, INC. • BRIDGEPORT, CONNECTICUT

In Canada—Dominion Chain Company, Ltd. • In England—The Parsons Chain Company, Ltd., and British Wire Products, Ltd. American Chain, American Cable Wire Rope and Aircraft Controls, Campbell Cutting Machines, Ford Chain Blocks, Hazard Wire Rope, Manley Garage Equipment, Owen Springs, Page Fence and Welding Wire, Reading Castings, Reading-Pratt & Cady Valves, Wright Hoists and Cranes

When writing American Chain & Cable Company, Inc. please mention Purchasing

(Continued from page 88)

PROTECTIVE SKIN CREAM

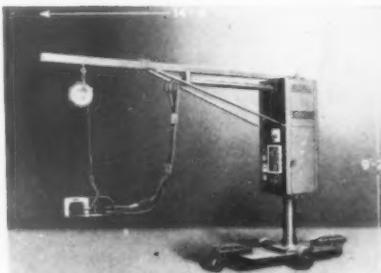
■ Industrial skin disorders which, according to statistics of a major insurance company, comprise two-thirds of all occupational diseases, are being brought under closer control by protective creams. In war plants where the workers' hands are exposed to oil, grease, solvents, or paints, these non-medicinal protective films are proving to be a great help, according to a recent survey.

A greaseless substance, a product of the Du Pont laboratories of Wilmington, Del. is applied to the hands, arms, and under the nails before starting work. It forms an invisible film which gives physical protection against grime and some irritating substances. At the end of the working period, it can be washed off with soap and running water, carrying the grime with it.

The use of the cream eliminates the necessity of using strong solvents or harsh abrasives to remove grime, paint, and grease from the workers' hands. Such cleansing materials frequently cause irritation.

Among the various types of war plants where workers have been benefitted through the use of this protective cream are those producing airplanes, airplane parts, ball bearings, tanks, trucks, precision instruments, machine guns, rifles, and insulating materials.

RADIAL SPOT WELDER



■ A radial-type gun spot welder, P-1-R, is being offered by Sciaky Bros., Chicago, Illinois in both stationary and buggy-mounted units. It is equipped with a special welding timer and operates on single phase A-C, 220 or 440 volts. Hydraulic pressure is supplied by a hydro-pneumatic booster, which can feed a gun able to supply a maximum electrode pressure of 1,800 lb with 90 psi of air supply.

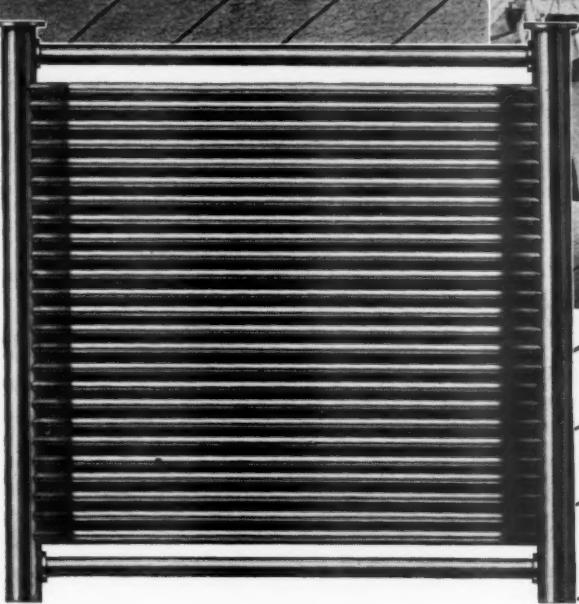
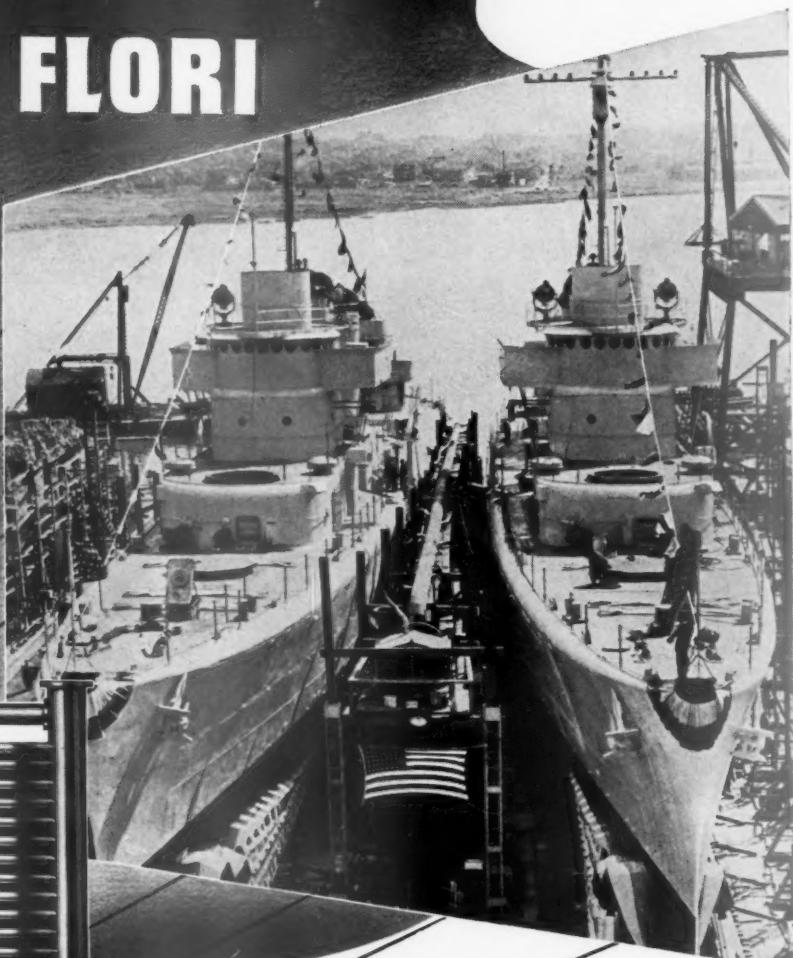
Fixed or crowded jigs can be easily reached with the portable buggy-mounted welding gun (illustrated). The maximum area reached by the stationary unit is represented by a circle of 21 ft diam.

Secondary cables are thin, flexible and short; the reduction in the usual size of secondary cables is made possible because of the use of fixed heavy copper bars (water-cooled) in the length of the secondary circuit.

In steady production conditions, this welder is capable of welding: corrosion-resisting steel, pickled steel, zinc-coated steel and Monel metal in thicknesses of

(Continued on page 92)

IF IT'S PIPING CONTACT FLORI



OUR scope: Fabricated Piping...for steam, water, air, oil, gas, chemicals

Random mill or cut lengths, bent, coiled, welded, flanged, threaded. Valves, Pipe Fittings.

In brief: anything in tubular or plate steel fabrication.

Our customers: United States of America and Allied Nations.

Send us your inquiries.



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THE FLORI PIPE COMPANY • ST. LOUIS, MO.

When writing The Flori Pipe Company please mention Purchasing



A 3-way plan for production step-up through Healthier Hands

This recommended prevention of occupational dermatitis pays off not only in cutting down compensation claims—but in the increased work efficiency of every man employed.

1. **LAN-O-KLEEN* FOR WASHING HANDS** is the basic start—a soap with a real PLUS value: not only CLEANS the grimmest hands—gently—but also "WORK-CONDITIONS" them. Lan-O-Kleen contains emollient LANO-LIN—the closest thing to natural skin oil. This lanolin content buffers the mild soap alkali; leaves fingers supple and limber. Lan-O-Kleen washed hands are better able to do good work—and turn out more of it. It pays.
2. **WESCOL* IN YOUR CUTTING OIL** helps prevent oil dermatitis, otherwise easily spread from man to man in the recirculation of your cutting oils and cooling compounds. It pays to know about WESCOL—and how effectively it disinfects.
3. **WEST PROTECTIVE CREAMS** are an external protection to guard your workmen from any of a wide variety of skin irritants which may lead to DERMATITIS. Investigate! IT PAYS!

*Trade Mark Reg. U. S. Pat. Off.

WEST DISINFECTING COMPANY

SERVING AMERICAN INDUSTRY FOR OVER 50 YEARS

55 BRANCHES
Coast-to-Coast
and in Canada

CLIP TO YOUR BUSINESS LETTERHEAD, PLEASE

WEST DISINFECTING COMPANY
Dept. P, 42-16 West St., Long Island City, N. Y.

Please send me your latest bulletin on

() Lan-O-Kleen Hand Cleaner
() Wescol () Protective Creams

Name _____ Title _____

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Street and Number _____

City and State _____

IF YOU WISH COPIES OF THE COLOR POSTER SHOWN IN ABOVE PHOTOGRAPH, USE COUPON AND CHECK HERE

When writing West Disinfecting Company please mention Purchasing

(Continued from page 90)

in. plus 0.064 in. It will also weld two unequal thicknesses up to a total welded thickness of 0.500 in., provided that one of the two thicknesses does not exceed 0.040 in.

In welding pickled mild steel or standard steel, a speed of 180 satisfactory welds per min can be attained on thicknesses up to 0.032 plus 0.032 in. Speed decreases as the sheet thickness increases.

BLACKOUT STREET LIGHT



■ General Electric's blackout street luminaire has been officially approved by the War Department, according to an announcement from Schenectady, N. Y. Redesigned to meet the revised specifications for American outdoor blackout lights, it provides a lighting intensity equivalent to 1/50 of the illumination of a full moon.

To eliminate likelihood of breakage from shrapnel or flying particles during an air raid, the luminaire has been built without glass and employs only plastics and iron. Light is supplied by a 9-watt long-life lamp placed in a plastic band. The luminaires are equipped with brackets, and can be installed either on buildings or on wood poles.

Blackout street luminaires, spaced from 100 to 150 feet apart, are expected to be used mainly in areas where blackouts may hold up production for war or military movements. In such cases, they will be installed on streets leading directly to war production factories or other vital war areas. Because of the low-wattage, long-life lamp employed, the luminaire may be operated 24 hours a day at low cost and be always in service when the blackout alarm is sounded.

PORTABLE GRINDERS

■ Two new portable grinders have been added to the extensive line of electric tools manufactured by Skilsaw, Inc., Chicago, Illinois. They are model "AD" and model "AE", 4 in. and 5 in. grinders respectively; both are especially engineered to meet today's high speed requirements on all grinding, wire brushing, polishing and buffing operations.

Both grinders contain every feature of advanced design and sturdy construction essential to maximum performance and adaptability to a wide variety of applications. Ball bearings mounted in steel inserts on armature and extreme ends of wheel spindle absorb thrust, eliminate vibration and insure cool operation. Commutator and switch are fully enclosed for

(Continued on page 94)

How ATKINS

Helps Meet and Beat
Arms Production Schedules

FORMERLY MADE
ONE CUT IN
7½ MINUTES

NOW CUTTING 45 Times as Fast!

TIME NOW SLASHED to 10 Seconds

That remarkable increase in cutting speed occurred on a job requiring the cutting of slots in electric cast steel arm brackets for army tanks. The saw was a 6" diameter Atkins Curled-Chip High Speed Milling Saw, equipped with the special 3-dowel Atkins drive. Upon the recommendation of the Atkins engineer, the saw was run clockwise, to cut up instead of down on the material (in contrast to previous practice on the job). This, plus the tremendous cutting speeds made possible by the recently-developed Curled-Chip tooth with its huge-sized inward-curving gullet, permitted cutting rates to be increased 45 times the former rate!

● The staggering performance of Atkins Curled-Chip Saws reported here shows the great possibilities for stepping up production by getting the right saw on the right job—and using that saw in the right way. With maximum production so vital to the whole arms program, plant men will be wise to question present performance on every job involving metal sawing. In shop after shop, the amazing records hung up by Atkins Curled-Chip Saws prove conclusively that former cutting standards can no longer be accepted as a measure of saw output.

To help you find out whether you are securing maximum production, call on Atkins for unbiased engineering aid. Without obligation, an Atkins engineer will investigate your cutting problems and tell you what can be done in the way of saving time and labor and reducing machine downtime on sawing operations.

E. C. ATKINS AND COMPANY, Indianapolis, Indiana

Originators of the
Curled Chip



SYSTEM OF METAL CUTTING

MEMO to Purchasing Department

Get us something to stop Rust

PROTECT FINISHED PARTS PROTECT STEEL IN STOCK PROTECT PARTS IN PROCESS

PROTECT MACHINERY PROTECT OVERSEAS AND DOMESTIC SHIPMENTS PROTECT SEMI-FINISHED PARTS

YOU CAN STOP IT INSTANTLY WITH NO-OX-ID

When NO-OX-ID protective coatings are used, corrosion does not have a chance to develop. NO-OX-ID penetrates immediately and stops rust formation by its double acting attack . . . mechanically by excluding corrosive agents and chemically by inhibiting action. There are numerous consistencies of NO-OX-ID for every coating requirement, all may be removed easily and quickly when desired.

For utmost protection of overseas shipments NO-OX-IDized Wrappers and bag box-liners are recommended in addition to surface treatment of parts. Shipments prepared in this way exclude corrosive elements. Get NO-OX-ID if you want permanent protection. Dearborn Engineer will gladly help you solve rust problems. Dearborn Chemical Company, Dept. AA, 310 S. Michigan Avenue, Chicago, Illinois.

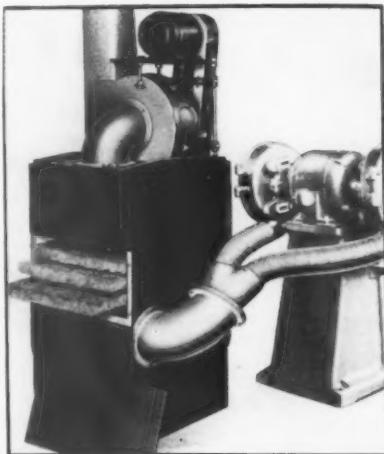


When writing Dearborn Chemical Company please mention Purchasing

(Continued from page 92)
protection against dust, and straightline ventilation blows dirt away from operator, prevents clogging. Finest steel gears, heat-treated for long life and spline-mounted on shafts, are both strong and quiet. Powerful universal motor assures full efficiency under load. Rubber sleeve handle provides a firm, cool, non-slip grip.

Model "AD" is 22 in. long, weighs 15 lbs. It operates at no-load speed of 4500 R.P.M., driving a grinding wheel 4 in. x $\frac{3}{4}$ in. x $\frac{1}{2}$ in. Model "AE" has a grinding wheel 5 in. x $\frac{3}{4}$ in. x $\frac{1}{2}$ in. and operates at 4200 R.P.M. It weighs 18 lbs. and is 22 $\frac{1}{2}$ in. long.

COMBINATION EXHAUSTER AND FILTER



■ The Hisey-Wolf Machine Co., Cincinnati, Ohio, have designed this combination exhauster and filter to do an effective job rather than to meet a price. The dust laden air enters a cyclone collector removing the coarser particles and after passing through impingement-type filters which arrest the fine dust, is so clean that it can be recirculated in the room after leaving the fan. The motor is externally mounted assuring cool and clean operation.

A handy clean-out is provided for the heavy particles. The filters are readily removable for cleaning by shaking. The large fans and motors provide high static pressure yet comparatively quiet operation.

PAPER FASTENER

■ After being off the market for ten years, the Bump paper fastener, latest stand model comes back as an indispensable device in any filing department, due to the shortage of wire staples and clips, ordinarily used for fastening papers, letters, etc. together. The fastener requires nothing but the paper sheets themselves for operation. There are no staples or clips of any kind. It makes a tie from the paper without clips, and fastens sheets together as effectively as with clips. It is made of non-critical materials, black oxi-

(Continued on page 96)



Mr. H. F. Braun, General Manager of The Taylor Precision Manufacturing Company, reports that his operators are machining Graph-Mo Steel for small arm punches at speeds as high as 190 surface feet per minute with .012" feed and .030" cut. These tools are heat-treated and used at hardnesses up to Rockwell C 65 on the working ends.

This northern Ohio manufacturer says that Graphitic Steel machines 25% faster than carbon tool steel, is less subject to distortion, provides an excellent finish after grinding, and wears longer.

For further information on Graphitic Steels, write on your company's letterhead and ask for a copy of "The Graphitic Defense Handbook".



THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
Steel and Tube Division

HELP ASSURE VICTORY

Buy War Bonds. Conserve Rubber. Eliminate Unnecessary Travel.
Use the Telephone Only When Important. Salvage All Scrap
and Waste Material.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
GRAPHITIC STEELS

When writing The Timken Roller Bearing Company please mention Purchasing

The Sponsors of Fibber McGee and Molly make good paint, too!



JOHNSON'S
Wax-Fortified Paints

Made by the makers
 of Johnson's Wax

Mill White Gloss
Mill White Flat
Commercial Interior Gloss
Commercial Interior Semi-Gloss
Commercial Interior Flat
Dado & Machine Enamels, etc.

A hand is shown dipping a paintbrush into a can of Johnson's Wax-Fortified Paints. The can is labeled "JOHNSON'S Wax-Fortified Paints MILL WHITE".

Hailed by many Purchasing Agents as Industry's Best Paint Buy!

These are truly modern paints for factories and offices—in key with Industry's war economy program. By using paint which has been impregnated with genuine wax, maintenance costs can be significantly reduced. Both manpower and material are

conserved. Johnson's Wax-Fortified Paints dry leaving a wax-smooth surface which resists soiling and staining, and hence retains its light-reflective values longer. The protective wax film also simplifies washing and cleaning. Easily applied with brush or spray. Write today for new booklet, the "Why and What" of Wax-Fortified Paints.

S. C. JOHNSON & SON, INC.
Industrial Maintenance Division

Dept. P-112, Racine, Wisconsin

When writing S. C. Johnson & Son, Inc. please mention Purchasing

(Continued from page 94)
 dized finish—three models to meet various office requirements.

The stand type with punch is a fastener and perforator combined. A narrow and a wide hand grip fastener are the other models, these being ideal for many uses around desks, such as fastening enclosures to letters, bills to vouchers, drafts to bills of lading, checks to remittance slips, etc. These clipless paper fasteners are manufactured by the Bump Paper Fastener Co., LaCrosse, Wisconsin.

VISUAL SYSTEM FOR FIRST AID INSTRUCTION



■ A new system for broadening the base of first aid instruction in war time industry, is available in the form of a slidefilm kit-set, which combines the advantages of the personal lecture, textbook study and demonstration, with those of the picture screen. Visualization of approved and established first aid procedures in every common form of accident or emergency is covered in this slidefilm (filmstrip) course. The kit-set contains 20 slidefilm productions, two of which are produced in technicolor. For each slidefilm subject there is a lecture—on record—a printed lesson guide, and an instructor's manual by which any intelligent employee, after himself taking the course, can conduct classes expertly. The purpose of the films is to speed up the process of training because pictures have the power to "let them see what you mean". Provision is made at intervals in lessons for stopping the picture and giving the class an actual demonstration using a live model of the procedure under consideration. Individual slidefilm with record, black and white is \$8.50 each. This is distributed to industry by The Jam Handy Organization, Detroit, Mich.

BOOSTER COILS FOR AIRCRAFT ENGINES

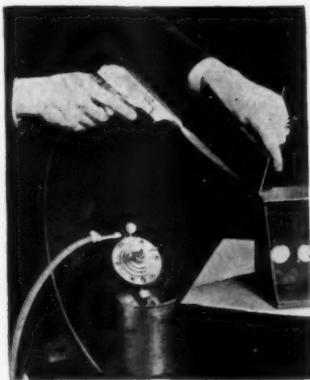
■ Two ignition booster coils for aircraft engines have been introduced by the General Electric Company of Schenectady, N. Y. These coils—one for use on 12-volt circuits, the other for 24-volt circuits—are designed to comply with U. S. Army Air Forces' specifications.

The booster coil provides ample and

positive spark for starting aircraft engines at low magneto speeds. The booster operates only at starting, and is then cut out of the ignition circuit. One booster coil per magneto is required.

The housing of the booster coil is constructed of a specially developed material that provides extra insulating strength and high resistance to arc-over. The booster coil operates successfully under wide range of ambient temperatures—from minus 70 F to plus 200 F. Productive output and decreasing man hours.

AUTOMATIC ACETYLENE TORCH



■ The gas gun, and automatic acetylene torch which looks like a pistol, is being introduced to Pacific coast war industries by the Gas Gun Company, Inc., of Salem, Oregon. Just pull the trigger, and the gas gun blazes. This handy gas gun is used for soldering, silver soldering, light brazing and lead burning.

The gas gun weighs only 20 ounces, is $6\frac{1}{2}$ inches long, and $5\frac{1}{2}$ inches high. Being small it is valuable in aviation and shipbuilding where close quarters will not efficiently permit the use of other equipment.

The gas hose from the acetylene tank connects to the Gas Gun at the bottom of the pistol grip handle. Ignition is made by pulling the trigger which strikes a spark from a flint similar to those used in cigarette lighters. Each flint is good for more than 500 ignitions and an extra supply is carried in a special compartment in the breech of the gun. The gas gun is made of solid bronze and tool steel.

The uses of the gas gun are manifold: soldering and silver soldering, sweating terminals on electric cables, leading joints in plumbing departments, aluminum soldering in aviation plants, silver soldering pipe lines for refrigeration and oil lines in ship and aircraft construction, lead burning in battery shops, lead and silver soldering in sheet metal departments.

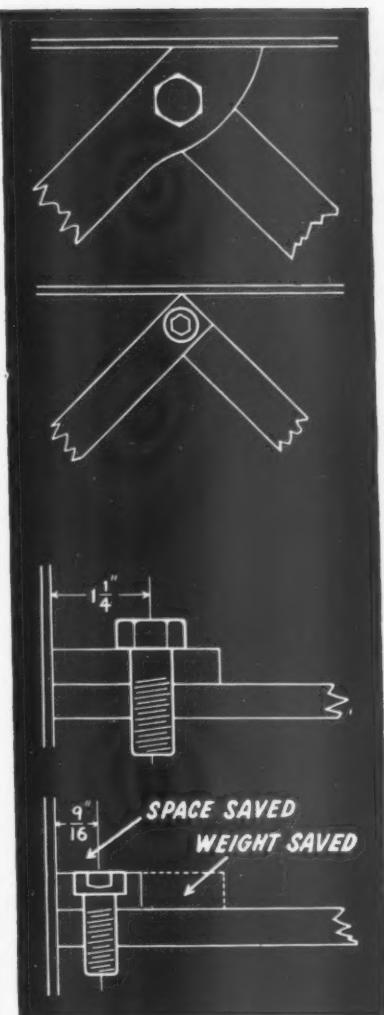
PLASTIC FORMULATIONS

■ New formulations of ethyl cellulose plastic designed to replace rubber have been found suitable for many uses of the now scarce material, Hercules Powder Company of Wilmington, Del., announced.

Soft formulations of this plastic can be used instead of rubber in gun covers, electrical tape or friction tape, water

(Continued on page 98)

Save WEIGHT - SPACE - TIME



HOLO-KROME fibro forged SOCKET SCREWS

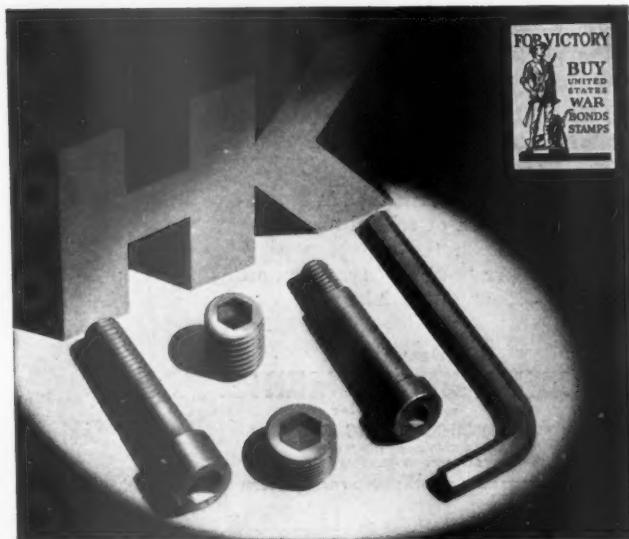
*Here's the Facts -
You do save*

WEIGHT resulting in compact and efficient design.

SPACE saving every inch of valuable space because of the closer application in corners and hard-to-get-at places.

TIME by increasing speed in assembly because of the internal hex. driving feature.

*GUARANTEED
Unfailing PERFORMANCE*



THE HOLO-KROME SCREW CORP., HARTFORD, CONN., U.S.A.

When writing The Holo-Krome Screw Corp. please mention Purchasing

AVOID this Costly Valve Leakage

AREA OF LEAK	AIR		STEAM		WATER	
	Diameter Inches	Number of cubic feet per month at 75 lb. pressure	Total cost of waste per month 1¢ per 1000 cubic feet	Pounds wasted per month at 160 lb. pressure	Total cost of waste per month 65¢ per 1000 lb.	Gallons wasted per month at 60 lb. pressure
1/2"	13,468,000	\$1,481.44	1,219,280	\$792.53	1,524,100	\$243.86
3/8"	7,558,500	831.44	684,290	444.79	855,360	136.86
1/4"	3,366,990	370.37	304,820	198.13	381,020	60.96
1/8"	824,570	90.70	74,650	48.52	93,310	14.93
1/16"	213,000	23.43	19,280	12.53	24,110	3.80
1/32"	52,910	5.82	4,790	3.11	5,990	.96

Enlarged copies of this chart available on request; also Lunkenheimer Catalog 78.

Valves aren't so easy to replace these days . . . practically all materials going into their manufacture are on the critical list. This means that it is up to every valve user to take the best care of what he has to insure the longest possible service life.

Leaky valves are saboteurs of your production schedules . . . obstructing your best efforts and increasing your costs. The chart illustrated above gives you an idea of what valve leakage costs you.

Fortunately, valves respond to good treatment. Careful handling, immediate repair of the slightest leaks, and prompt replacements of worn parts will keep them on the job, ready to meet the demands imposed by industry's unprecedented war effort.

Since virtually all materials used in the manufacture of valves are on the list of critical materials, valve users are urged to furnish the highest possible preference ratings and proper "end use" symbols on their orders. This will be of mutual helpfulness.

ESTABLISHED 1862
THE LUNKENHEIMER CO.
 "QUALITY"
 CINCINNATI, OHIO, U.S.A.
 NEW YORK CHICAGO
 BOSTON PHILADELPHIA
 EXPORT DEPT. 318-322 HUDSON ST. NEW YORK

LUNKENHEIMER VALVES

When writing The Lunkenheimer Co. please mention Purchasing

(Continued from page 97)

tubing to replace brass, raincoats, hospital sheeting, garden hose, and other kinds of rubber hose, mason jar rings, surgical tape, wire insulation, golf balls, baby pants, gloves, impregnated fabrics, coated fabrics, washers, and footwear. It is also described as resistant to mustard gas.

Ethyl cellulose in the form of a soft plastic for these applications is not only a new approach to the rubber problem but a comparatively new development in plastics, most of which heretofore have been hard plastics, the company said.

Ethyl cellulose when compounded with oil and chemical plasticizers in the range of 40 to 60% ethyl cellulose and 60 to 40% plasticizer, produces compositions having many of the qualities which have made rubber applicable to numerous products.

The new plastic formulations, while not suitable for tires or inner tubes as presently developed, would probably be suitable for rubber applications which before the war consumed 60,000 tons of rubber.

Qualities of the various formulations are toughness, pliability, flexibility, impermeability, and thermoplasticity. The soft type mixtures can be made to retain good flexibility at temperatures as low as minus 70° F., a temperature at which most plastics will shatter like glass upon impact. Properties which restrict the application of ethyl cellulose are its limited elasticity and lesser resistance to tearing than rubber.

GLASS FIBER SAVES ALUMINUM

The Navy Department, in cooperation with Owens-Corning Fiberglas Corporation, has developed a glass fiber board for the heat insulation and interior finish of fighting ships and auxiliary vessels which, since the first of the year, has saved five and a half million pounds of aluminum, together with other scarce, light-weight materials that would otherwise have been used for this purpose.

The amount of aluminum saved is approximately equivalent to that required for the construction of 250 flying fortresses. Raw materials needed for the manufacture of the glass fiber board are practically unlimited and all are found within the continental borders of the United States.

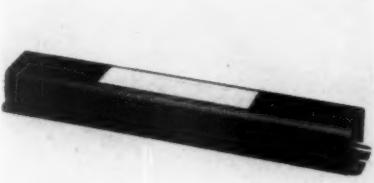
Developed as a part of the Navy's program to save critical materials in the construction of its ships, the new board is made of compressed glass fibers treated with a binder. It is both light in weight and fireproof. On the service side it is faced with incombustible glass fiber cloth which is applied to the board with flame-proof cement.

The board is secured with an adhesive to steel surfaces which require both heat insulation and a durable finish of good appearance. Joints between individual boards are covered with glass fiber tape, and the entire surface is finished with lead and oil paint. In addition to being light in weight and incombustible, the board is rotproof and vermin proof. It is

unaffected by dampness or salt water, and the surface is easily cleanable.

The insulating value of the board is due to the millions of entrapped air cells, and to the fact that where the glass fibers cross and touch each other they have exceedingly fine contact points, with the result that heat cannot pass readily from one fiber to another.

BALLAST FOR FLUORESCENT LAMPS



■ The development of a 4-lamp ballast for fluorescent lighting of war plants has been announced by the General Electric Company of Schenectady, N. Y. The new ballast will operate four 100-watt lamps, yet costs no more than a tulamp 100-watt ballast.

The new 4-lamp ballast opens the way to simplified fluorescent fixtures that cost less, weigh less, and use much smaller quantities of critical copper, iron, steel, and aluminum. Compared with two 100-watt tulamp ballasts—the most economical type previously available—the new ballast requires 48 per cent less copper, 47 per cent less iron and steel, and 50 per cent less aluminum. Appreciable power savings also result—for a given installation electrical losses are cut 46 per cent.

The new 4-lamp ballast operates over a line-voltage range of 250-280 volts, and is applicable to circuits in the 265/460-volt-Y class. This means a reduction in copper requirements for plant lighting circuits.

BUTTERFLY VALVE

■ This valve has been successfully operated under high pressure in hydraulic service for generations. The low first cost, ease of control and low pressure loss have made it ideal for this service. One of the earliest known examples was laid in New York City by the Manhattan Water Company early in the 19th century.

The R-S Products Corporation of Philadelphia, Pa., has developed the butterfly valve to a high state of efficiency so that it is now used in many services to replace more expensive and less satisfactory valves of a more conventional type. It is said that these accurately machined butterfly valves close as tightly as double seated valves.

In addition to the standard line of precision-made, manually-operated valves, they are now adapted to automatic operation under high or low pressures and temperatures, in sizes from 2" to 72".

(Continued on page 100)

MAKE YOUR FILES LAST LONGER

1. Keep your files clean. Clean files cut faster and last longer. They may be easily cleaned with a file card or stiff fibre brush.
2. Use just pressure enough to keep the file cutting. If allowed to slip or rub it will glaze the work and dull the teeth quickly.
3. Don't put pressure on the back stroke when filing.
4. Rubbing chalk in file teeth helps when making fine, smooth cuts.
5. Keep your files dry and free from dust.
6. Hard spots and hard corners on iron castings are hard on files. On such work first go over it a few times with an old file before putting your good file on the work. It is File economy.
7. Why not have a rack for your files instead of throwing them in a pile—it's File economy. These hints on care and use are from the pamphlet "File Facts." A postal card will bring a Free copy to you.

SIMONDS
GUARANTEED FIRST QUALITY

RED TANG FILES

SIMONDS SAW AND STEEL CO.
FITCHBURG, MASSACHUSETTS

METAL-CUTTING TOOL MANUFACTURER

Circular and Band Saws • Shear Blades • "Red End" Hack Saws • "Red Tang" Files • Tool Bits

When writing Simonds Saw and Steel Co. please mention Purchasing

Installation Goes Like Clockwork

*... when you specify
"Skilled Lighting"
Fixtures by Wheeler!*



RLM Duratach Units

Made in Dome, Angle and all other standard types. Wheeler Duratach construction provides for quick and easy interchangeability of reflectors.



**RLM Open-End
Fluorescent Units**

Made in two- or three-lamp constructions, units can be mounted from chain, conduit, or directly to ceiling. For use with 48-inch, 40-watt lamps. Also RLM units for use with 100-watt lamps.



You can avoid time-wasting troubles on your lighting jobs by selecting quality fixtures... equipment designed and built with the skill and integrity that come only through long years of specialized manufacturing experience.

Wheeler Fixtures are "skilled lighting" that will never let you down! They're made by lighting specialists with over 60 years' experience... designed for speedy, trouble-free installation... engineered for maximum lighting efficiency... accurately and sturdily constructed

to meet top standards of materials and workmanship. They'll help you get prompt inspector-approval on your jobs... save you later servicing.

All your requirements can be supplied by Wheeler's complete line of Industrial Fixtures. Wheeler engineers will be glad to work with you in planning the right layouts. Write for latest catalogs of Wheeler Incandescent and Fluorescent Fixtures. **Wheeler Reflector Company, 275 Congress St., Boston, Mass.** Branch offices in New York City and Cleveland, Ohio. Representatives in principal cities.

Distributed Exclusively Through Electrical Wholesalers

Wheeler REFLECTOR COMPANY
Lighting Equipment Specialists Since 1881

When writing Wheeler Reflector Company please mention Purchasing

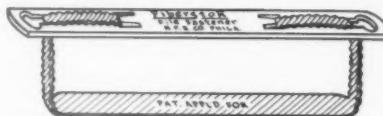
(Continued from page 99)

In order to meet special requirements, either or both bodies and vanes are manufactured from any required metal or alloy such as aluminum, brass, bronze, stainless steel, Monel metal and others. These applications include high and low pressures and temperatures for the accurate flow control of oil, oil vapor, air, gas, steam, water, chemicals, paper pulp, or any other material that flows or can be pushed through a pipe.

Extended stuffing boxes and shafts, ball bearings and rotary seals are frequently furnished as well as special linings such as rubber, cadmium plating, etc.

These special valves are operated automatically by floats, electric motors, solenoids, steam, compressed air, hydraulic or remote control systems.

NON-METALLIC FILE FASTENER



■ The non-metallic file fastener is a new product developed by the Keystone Envelope Company of Philadelphia, Pa. to replace metal file fasteners because of the critical shortage of tin and steel, formerly used for this purpose, but no longer available for non-military purposes. It is used for binding perforated papers in filing folders and brief or binder covers, to lend an orderly appearance and prevent loss or misfiling of loose correspondence, etc.

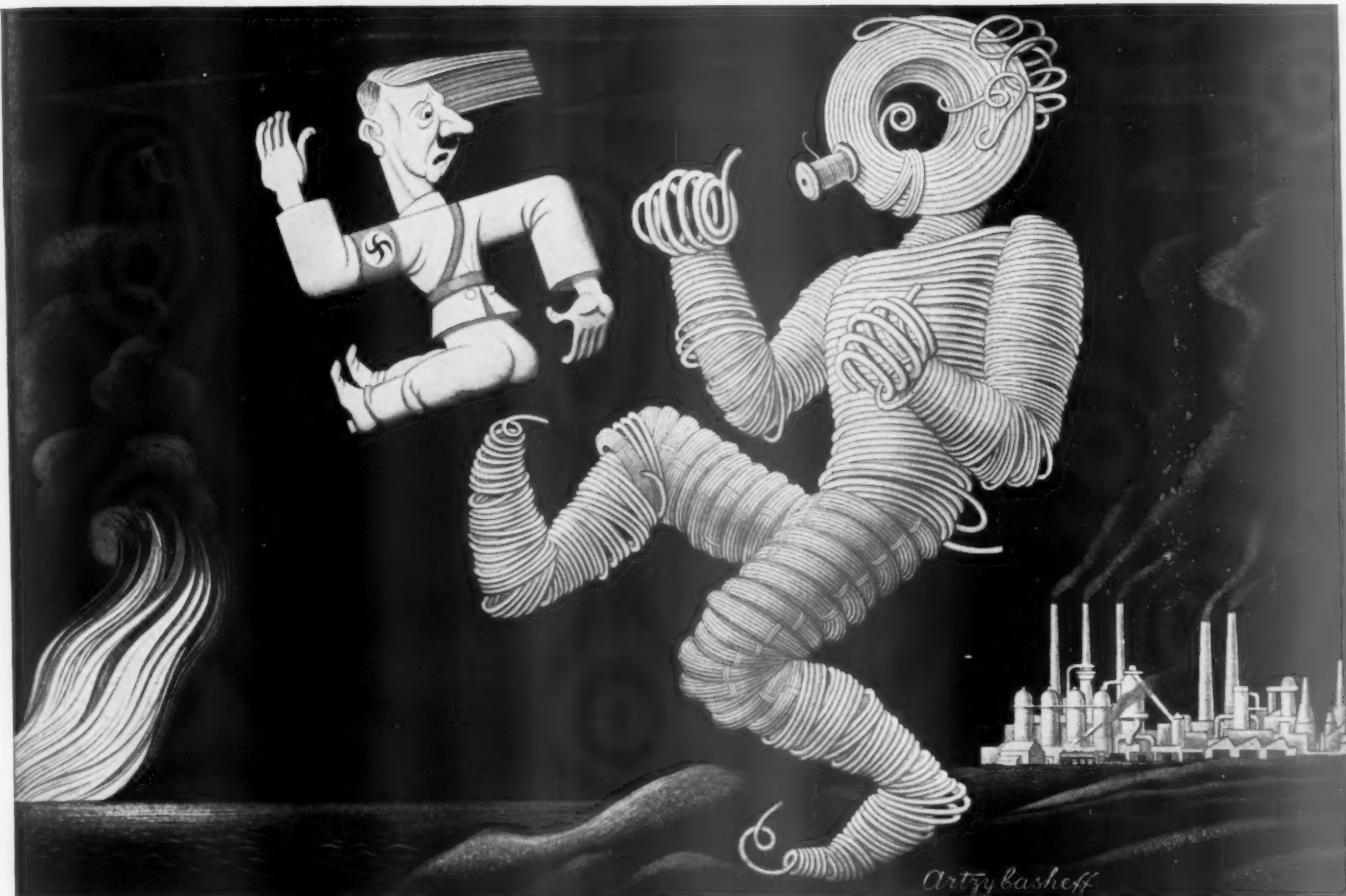
Made from a tough, hard fibre, this fastener had to be designed in such a manner as to prevent slipping or sliding of the prongs in use. The notched prongs are engaged in the slot in the compressor plate, which positively prevents any slipping. By spacing the notches at regular intervals, variation in capacity is provided for, so that papers may be added to the folder until the maximum capacity is reached. These fasteners are available for all popular standard punchings, in one-inch and two-inch capacity prongs, and prices are below those formerly charged for similar items made of metal.

ASBESTOS-FACED BOARD

■ Since WPB orders have drastically restricted the use of steel for many purposes, a new board of laminated construction, and a valuable alternate for sheet metal, is receiving wide attention.

This product is rustproof, moisture-resistant and strong. It meets fire tests of Federal Spec. 55-A-118 (Fire Retardant); has important advantages for many industrial applications such as air ducts (return or supply), joist liner, partition construction, shop and factory ceilings, clothes chutes, dumb waiter lining, elevator shaft protection, spray booths, attics and stairwells, reflector panels for indirect lighting.

(Continued on page 102)



Enlarged reproduction free on request

Wire with Kick in it

Wissco wire is putting temper, spring action, and strength into the attack.

It is fighting in everything from airplanes, to bombs, to torpedoes, to tanks, to uniforms, to warships . . . and then some.

In every foot of *Wissco Wire* is the fighting spirit of thousands of loyal production soldiers whose output for Victory is breaking all-time records. In every inch is the skill acquired in 121 years of research, discovery and pioneering—the things it took to make *Wissco* one of the world's leading wire producers.

If you have a war need for wire, put it up to experts. *Wickwire Spencer Steel Company*, 500 Fifth Avenue, New York; Buffalo, Chicago, Detroit, Philadelphia, San Francisco, Worcester.

EVERYTHING IN WIRE. High and Low Carbon Wire—Wire for Springs, for Wire Rope, for use in scores of industries, in a variety of sizes, tempers, grades and finishes.



CURIOSITY INC. *Wissco* research has produced many basic improvements in wire metallurgy, and in wire uniformity and quality. Every step from ore pile to blast furnace, to open hearth, to finished wire is done right in our own mills.

SEND YOUR WIRE QUESTIONS TO WICKWIRE SPENCER

WISSCO  **WIRE**
BY WICKWIRE SPENCER 

When writing Wickwire Spencer Steel Company please mention Purchasing



A BOND OF SECURITY that is winning Uncle Sam's production drive



Thousands of CM Herc-Alloy Sling Chains are helping to win America's production drive by moving valuable materials such as molten metals, guns, tanks and fabricated assemblies. The added bond of security provided by the

extra swell of metal at the weld of these Herc-Alloy Sling Chains gives industry an extra margin of safety and wear. *Herc-Alloy Chains, made from special analysis steel, never require annealing.* Engineering catalog No. 44 will be promptly sent on request.

CM HERC ALLOY SLING CHAINS

★ ★ ★

INVEST REGULARLY IN VICTORY—BUY WAR BONDS AND STAMPS

★ ★ ★

COLUMBUS-MCKINNON CHAIN CORPORATION

(Affiliated with Chisholm-Moore Hoist Corporation)

120 FREMONT AVENUE, TONAWANDA, NEW YORK

BRANCH OFFICES: NEW YORK • CHICAGO • CLEVELAND

When writing Columbus-McKinnon Chain Corporation please mention Purchasing

(Continued from page 100)

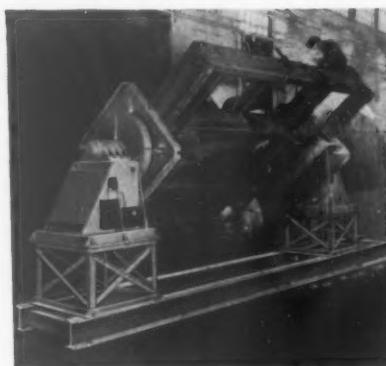
Other merits attributed to the product are: that it is flame-proofed; a non-conductor of electricity; clean finish; odorless; free from asphalt or organic binder; tough; light; easily worked.

Since the board is finished in white asbestos felt on both sides, it is said to be attractive in appearance and to save, in many instances, the cost of an additional finish. However, it is claimed that the board readily takes the usual casein or cold water paint and, after sizing, lead and oil.

The board is available, according to the manufacturer, in sheets 33 inches wide and 60 inches long, especially suitable for standard joist spacing of 16 inches.

This material is a product of The Philip Carey Manufacturing Company, Lockland, Cincinnati, Ohio.

ROTATING WELDING FIXTURE



■ A rotating welding fixture consisting of a head-stock and tail-stock combination for position-welding large cumbersome objects such as that illustrated, has been developed and placed in service by the Ransome Machinery Company, Denville, New Jersey.

The head-stock table top is fixed in a vertical position with its spindle shaft turning in double Timken roller bearings. This unit is provided with power for rotating through a pinion in mesh with the table top ring gear. The driving motor and self-locking gear reduction are completely enclosed within the main frame. The tail-stock is essentially of the same design and construction as the head-stock, but is not provided with power and functions as an outboard holding fixture. The distance between the head-stock and tail-stock is made variable to accommodate objects of different lengths, by mounting the tail-stock on heavy I-beams and moving it to accommodate the object to be welded. Height adjustment is accomplished by providing simple sub-bases to suit the conditions of service. Both head-stock and tail-stock are of heavy all-welded construction and table tops are T-slotted to facilitate clamping.

Where a difference in elevation between the head-stock and tail-stock units is desired to provide additional downhand welding positions, the main base of the units is pivoted at one end and provided with a hydraulic jack at the other.

(Continued on page 104)

*Defense
against
slipping*

BLAW-KNOX GRATING

A Blaw-Knox Electroforged Steel Grating Floor with the safety twisted cross bar that grips shoe soles and avoids accidents.

To protect your men and keep them on the job for National Defense, use **BLAW-KNOX OPEN FLOORING** in all places in your shops where there is a chance of falls due to underfoot conditions.

Send for paper-weight size sample showing safety cross-bar construction.

BLAW-KNOX DIVISION of Blaw-Knox Co.

2075 Farmers Bank Building • Pittsburgh, Pa.

NEW YORK CHICAGO PHILADELPHIA BIRMINGHAM



NORTON ABRASIVES

"METALITE" ABRASIVE GADGETS

for sanding "hard-to-get-at" places



On Portable Tools
They Finish in Seconds
Jobs That Used to Take Minutes

▲
Dozens of Shapes
Hundreds of Sizes and Grits

Write Us or Phone a Nearby Branch

Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit,
Grand Rapids, High Point, Indianapolis, Los Angeles,
New York, Philadelphia, St. Louis, San Francisco, Tacoma



BEHR-MANNING
(DIVISION OF NORTON COMPANY)
TROY, N.Y.

When writing Behr-Manning please mention Purchasing

(Continued from page 102)
IDENTIFICATION BADGE



■ A new unit that is reusable, and yet tamper-proof, has been developed by the American Emblem Company, Incorporated, Utica, New York. The design is being used by many Government War Agencies.

Every industrial plant today is confronted with an abnormally high ratio of employee turnover, caused by the needs of the Services. This new badge design drastically reduces the cost of operating an identification system since the units can be opened and closed for changing photographs, and thus used over and over again.

The new badge construction also eliminates undue loss of priceless employee time by making possible quick changes of colored paper inserts when shifting employees to different departments. Changes of photographs and color designations can be accomplished only with a special tool furnished by the manufacturer.

Assembly of the badge unit is simple. The badge parts, photograph and color designations (if any) are locked with a metal rivet by means of a special tool. When sealing, the closing die engraves an identifying letter or letters of the firm name on the face of the rivet, providing the user with a special seal. To dismember the unit, the opening die simply breaks through the rivet, destroys the seal, and renders the badge parts loose. For fool-proof protection, when reassembling, the closing die engraves the Company seal on the new rivet.

INDIRECT MERCURY LIGHTING

■ Localized lighting, direct and indirect glare, and shadows are eliminated for the first time in industrial plants by a new method of indirect mercury lighting designed by a Westinghouse Lighting Division engineer.

Hitherto impractical for industrial use until the recent development of the 3000-watt mercury vapor lamp, the system was worked out using a working model of an airplane plant. This plant will be the nation's first to adopt the new indirect lighting design to obtain high intensity, glareless and shadowless illumination.

A tunnel-shaped plant model represented part of the plant. The high-intensity lighting was simulated by suspending

(Continued on page 106)



Call Scully for
**NATIONAL EMERGENCY
ALLOY STEELS**

TO save critical materials such as nickel and chromium, "National Emergency Alloy Steels" have been developed as substitutes for the old style alloy steels. These new alloy steels cover a wide range of properties and were especially designed to meet present conditions. Many of them are actually out-performing the steels previously used.

Our stock of these "National Emergency Alloy Steels" is now coming in. We welcome your inquiries and orders and would be happy to assist you in determining the grades best suited to your needs.

Telephone, wire or write the Scully Warehouse nearest you—see phone and teletype numbers above.

Do you lack steel to complete a rush war job? Is your production in danger of being slowed down or stopped for want of some piece of steel or steel product? Then call the nearest Scully warehouse. Many such calls have kept wheels turning. If we don't have what you need, you can be sure that we'll do everything possible to help you get it.

Our first job, like yours, is to speed war production. Every one of our warehouses is on the job day and night. And although our stocks of steel are not what we wish they were, what we have can be yours in a hurry—subject, of course, to priority restrictions. So try Scully—note our phone and teletype numbers above.

SCULLY STEEL PRODUCTS COMPANY

Distributors of Steel and Steel Products

Warehouses at CHICAGO
ST. PAUL-MINNEAPOLIS

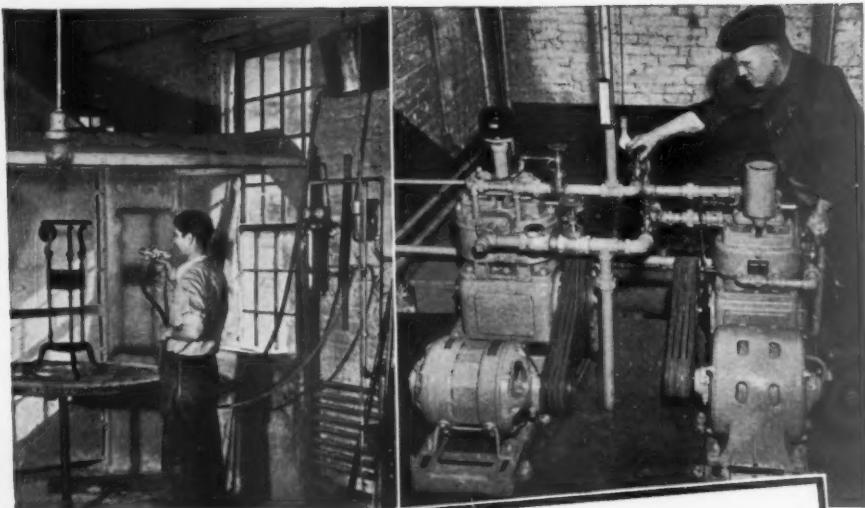
NEWARK, N. J.
CLEVELAND

ST. LOUIS
PITTSBURGH

BOSTON
BALTIMORE



UNITED STATES STEEL



**FURNITURE COMPANY SAYS "Air From
CURTIS COMPRESSORS
Is Vital to the Operation
of Our Plant."**

★ This company uses air profitably for a variety of important operations; to start Diesel Engines; to operate from one to five spray booths; blowing chips from machinery; driving sanding machines; operating air lifts; etc.

C. R. Sargent, maintenance engineer of the Fine Arts Furniture Co., Grand Rapids, says that his firm relies on Curtis Compressors "because of low maintenance cost and high efficiency."

In addition, says Mr. Larson of Fine Arts, "the use of air spray finishing has upped production ratio several hundred percent and improved quality of finish."

One Curtis Compressor has been in use for 9 years and two for 5 years, on practically continuous service, with a total maintenance expense of less than \$100.

Such an experience is typical of that of thousands of users of Curtis equipment. Why? Because of such Curtis engineering advantages as:

- Timken Roller Bearings
- Centro-Ring Oiling
- Capacities up to 360 cfm
- Carbon-free Disc Valves
- Precision Construction

Send the coupon or write for proof of Curtis economy and efficiency.

CURTIS
St. Louis • New York
Chicago
San Francisco
Portland

CURTIS PNEUMATIC MACHINERY DIVISION
OF CURTIS MANUFACTURING COMPANY
1908 Kienlen Avenue, St. Louis, Missouri

Please send me booklet, "How Air
Is Being Used in Your Industry."

Name.....
Firm.....
Street.....
City..... State.....

When writing Curtis Pneumatic Machinery Division please mention Purchasing

(Continued from page 104)

two lines of high voltage fluorescent tubing from the center of the vaulted arch ceiling. Walls, ceiling and floor of the model were made of $\frac{1}{4}$ " compo-board and were coated with several kinds of white paint to determine maximum surface reflectivity.

By obtaining reflection factors for the white ceiling and floor of 75 and 65 per cent respectively, about 35 foot candles of illumination is provided under the wings of model planes placed inside. Although much aircraft assembly work is done on the underside of wings and fuselage, localized lighting to provide the desired illumination is not necessary.

WOODEN SHELVING

■ Quickly adjustable shelving, very essential for saving floor space in wartime industries but eliminated by steel priority, is now offered in wood by Lyon Metal Products, Incorporated of Aurora, Illinois.

This shelving is made in open and closed types. Sections are 36" wide and 84" and 96" high, and may be had in 12", 18" or 24" depths.

The top, base, shelves, braces, arms and uprights are made of solid hard wood. Side panels, back panels on closed type are $\frac{1}{4}$ " plywood. It is finished with a green tinted preservative coating that reduces moisture absorption. It is also easy to set up.

Features of Lyon wood shelving include dividers, bin fronts, adjustable shelves, and shelf boxes.

POWER AND CONTROL UNITS

■ Complete Power and control units for resistance welding—including, in one compact cabinet, contactors and firing relays, sequence timer, protecting fuses, limit switches, motor starter, low voltage transformer and relay, etc.—are now available from Weltronic Corporation, Detroit, Mich.

The complete power cabinets eliminate
(Continued on page 108)

**Be sure to read "How to
Buy a Screw" begining on
page 51. Extra Reprints**

are available

Purchasing

605 East 42 St.

New York, N. Y.

BENJAMIN

BENJAMIN

Lighting Equipment Bearing These Insignia

300

500

WATT LAMP

COMPLIANCE WITH
SPECIFICATIONS UNDER
PROCEDURE OF INSPECTION
TIME CERTIFIED
ELECTRICAL TEST LABORATORY

200

WATT LAMP

60
WATT LAMP

Are Helping Thousands of Plants to Meet War Production Quotas

BENJAMIN PRODUCTS

★ ★ ★

INDUSTRIAL
LIGHTING EQUIPMENT
including fluorescent, incandescent
and mercury lamp units.

EXPLOSION-PROOF UNITS
DUST-TIGHT UNITS
VAPOR-TIGHT UNITS
FLOODLIGHTING
EQUIPMENT

★
MARINE
LIGHTING EQUIPMENT
MARINE WIRING DEVICES

★
SOCKETS
AND OTHER WIRING DEVICES

★
SIGNAL EQUIPMENT
including Sirens, Horns, Buzzers
and Telemote Relays.

If you have a problem relating to the use of any of the above products, write the Benjamin Electric Mfg. Co., Dept. Y, Des Plaines, Ill., for data and recommendations. Benjamin services in the solution of such problems are available without cost or obligation of any kind.

*These statements are amply substantiated in research reports and publications of the Illuminating Engineering Society, American Standards Association, governmental and other war agencies and by the experience of electrical and illuminating engineers, and thousands of plant executives.

Good lighting is essential to MORE production*. This fact makes lighting equipment selection, installation and maintenance of first-rate importance to the War effort; because Good Lighting is almost completely dependent upon properly designed, constructed, installed and maintained lighting equipment.*

To provide such lighting equipment for war industries, for America's naval units and shipping and for the protection of industrial and governmental properties against sabotage is

Our Proud Task in this War

To this War task we bring all our resources . . . all our energies . . . all our experience and skill in the design, manufacture and distribution, of industrial, commercial and marine lighting equipment, related electrical products and signal systems.

Summarized here are the five factors which make the name Benjamin on lighting equipment stand for Good Lighting—More Production.

EXPERIENCE. More than forty years of research, development and engineering—the experience gained through thousands of actual plant experiences with lighting and the knowledge of the durability and maintenance requirements for industrial lighting equipment—provide assurance of Good Lighting when you specify Benjamin.

ENGINEERING SERVICE. Benjamin's experienced research and engineering staff and trained field engineers are at your call in surveying and analyzing your requirements; in preparing recommendations, plans and specifications that insure proper installation, operating efficiency, economy.

PRODUCT QUALITY. Benjamin equipment is designed and constructed in conformance with all known electrical, mechanical

and illumination standards such as RLM, Underwriters' Laboratories, Electrical Testing Laboratories, National Electrical Code and Bureau of Standards.

MANUFACTURING FACILITIES. Trained personnel and sufficient equipment give assurance that small as well as larger orders are properly handled in accordance with their priority status.

MAINTENANCE SERVICE. Available through Benjamin's nationwide distributor organization, are Benjamin replacement parts and repair services. These services minimize interruptions and inconvenience and help conserve materials by making most unlikely any necessity for replacements of entire lighting units.

BENJAMIN ELECTRIC MFG. CO., DEPT. Y, DES PLAINES, ILLINOIS

BENJAMIN LIGHTING EQUIPMENT

DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

WE CAN'T ALL

have the privilege of lining up an enemy airport in the cross-hairs of a bomb-sight and jerking the release



ONLY A COMPARATIVE FEW

of us will feel the exultation of seeing an enemy raider through a periscope, watching it disappear as an American torpedo goes home



Millions of us must be content with doing the unspectacular. Millions of us must remember that for every stick of bombs released, for every torpedo a U.S. ship drives into its target, literally hundreds of our humble, unspectacular jobs had to be done...and done right...and done on time. Millions of us must remember, every minute of every hour of every day, that there is no unimportant job...that we will win this war at our desks, at our machines, with our picks and shovels...by doing our own jobs better than ever before!

JOHN A. ROEBLING'S SONS COMPANY

TRENTON, NEW JERSEY • Branches and Warehouses in Principal Cities

ROEBLING
THE PACEMAKER IN WIRE PRODUCTS



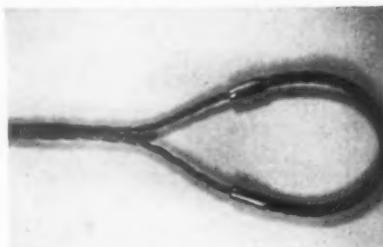
When writing John A. Roebling's Sons Company please mention Purchasing

(Continued from page 106)
not only the necessity for the usual multiplicity of separate control units but also eliminate all external inter-unit wiring requirements, so that only the simplest of wiring is required to connect the complete set of controls to the machine, while simple three-wire connections are made to the 440 or 220 volt power supply circuit.

Similar units, without ignitron contactors and firing relays, are available for controlling operation of a wide variety of automatic machines.

They are assembled in steel back panel cabinets to meet individual user's requirements, using standard sub-assemblies, and are available for any type of welding equipment. Additional advantages include a lower installed cost than for separate units and the insurance of "factory-wired" circuits throughout. Thus the units are available with a wide variety of contactors, ranging up to 600 amp. capacity, with synchronous and non-synchronous types of timers of any standard or special type, etc.

WIRE ROPE SLINGS



■ A new wire rope sling has been developed by the John A. Roebling's Sons Company of Trenton, New Jersey to meet a universal need for a light, flexible, non-kinking, non-spiralling sling to handle loads more easily. It was developed specifically for lifting light and medium loads where the legs choke the load or the sling comes in direct contact with the load being lifted.

These slings have a flat bearing surface which allows an even pressure on each of the six ropes which comprise the sling, thereby prolonging its useful life. Being flat and flexible, they are easily passed through or under the load.

The body is made up of six separate ropes. Two pairs of two ropes each are laid in opposite directions. These are united into a finished sling unit by two single tie ropes which alternately pass back and forth around one pair and then the other in a spiral figure 8. This method of construction eliminates the possibility of any scissors or shearing action between the various ropes.

This pattern develops a high strength efficiency which is equalled by the high efficiency of the specially constructed loops. The same safe loads can therefore be allowed with loops as with socketed ends. The loops, which can be used as chokers without the use of thimbles, are

(Continued on page 110)



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P. DE
NEW Y
CLEVELA



"TRIAL-TEST" POR-OS-WAY

the new, precision grinding wheel!

IT DELIVERS

2 TO 5 TIMES
MORE PRODUCTION
PER MAN PER MACHINE

LET USERS TELL THE STORY—

SHARPER AND COOLER—"Cut so much sharper and cooler than other wheels that several department heads were called in to witness the operation." (Surface grinding small discs.)

50% BETTER PRODUCTION—"Gave 50% better production than competitor's wheel. Held a true edge in grinding a complete gear cutter with no burn whatever. Free, cool cutting without dressing. Good finish." (Grinding high-speed steel tool steel on Le Blond grinder at 3000 R.P.M.)

ACHIEVED EXCELLENT RESULTS—"As head of department, would like to change over to grinding to Por-OS-way wheels as I have had such excellent results."

350% BETTER PRODUCTION—"Very successful; gave 350% better production." (Grinding Stellite "J" cutter heads on Cincinnati No. 2 tool and cutter grinder at 5735 R.P.M.)

OUTSTANDING GRINDING QUALITIES—"Outstanding grinding qualities. Wheel wore but $\frac{1}{4}$ " on 50 pcs. ground. Edge held up." (Grinding shafts in gauges at 3200 R.P.M., removing .005" stock.)

NO LOADING, NO BURN—"Cut freely, did not load and cut hardest steel without any trace of burn. Obtained at least 300% better production." (Facing tool steel gears SAE 41-50 at 3460 R.P.M.)

HELD EDGE WITHOUT DRESSING—"Gave 50% better production than competitor. Held edge without dressing. Ground 4942 pcs.—average 353 pcs. per hour." (Grinding hardened steel bushings on B & S.)

25% INCREASE IN WHEEL LIFE—"Enclosed find order for Por-OS-way. Trials very satisfactory. Reduction of 40% grinding time. 25% increase in wheel life."



POR-OS-WAY*

8 WAYS BETTER

1. 2 to 5 times faster stock removal. Takes deeper cuts, or usual cuts at faster feeds.
2. Holds its corners. Requires only minimum dressing.
3. Does its job at the lowest possible cost.
4. Equal or better wheel life.
5. Cool action structure.
6. Practically ends burning.
7. One man, one machine can do the work of 2 to 5.
8. Free cutting. Resists "loading" of soft materials.

See the trend to Por-OS-way—introduced formally in Fortune Magazine, February, 1942.

SUGGESTION:

Mall the coupon yourself or clip ad, check below and route to responsible person.

Superintendent

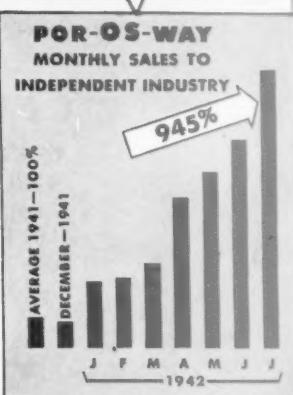
Works Manager

Master Mechanic

Grinder Foreman

Mr.

Mr.



A. P. DE SANNO & SON, INC.

438 Wheatland St.

Phoenixville, Pennsylvania

CERTAINLY—I WANT 2 TO 5 TIMES MORE PRODUCTION PER MAN PER MACHINE. Send along that Por-OS-way folder with its "Prescription Book" for a demonstration of Por-OS-way's 8 advantages.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

P. DE SANNO & SON, INC.
NEW YORK, CHICAGO, PITTSBURGH,
CLEVELAND, DETROIT, LOS ANGELES



PHOENIXVILLE, PENNA.
The Western Gateway to
Valley Forge



Turn Out Better Plans--QUICKER

Quality plus Speed *both* count these days! And with Pencil-TEX — the Post pencil tracing medium with the new s-m-o-o-t-h surface — getting out top-quality drawings in jig-time is no problem. Pencil-TEX takes hard pencil lines, coarse or fine and anchors 'em jet black. Because of its glass-like transparency, and the density of pencil lines on its surface, prints made from Pencil-TEX have a razor-keen sharpness, a cleanliness and a clarity that makes blue-print readers say: "Why doesn't every drafting room speed up with Pencil-TEX?" Remember Pencil-TEX is available in 20-yard rolls of 30, 36 and 42-in. widths. Your best Priority will bring it quickly. Accept today the free offer below.



GET YOUR FREE TRIAL NOW

At our expense, prove to yourself the superiority of PENCIL-TEX. Free trial samples—actual work size sheets—are yours for the asking. Your local Post dealer will be glad to supply work sheets in your size. 'Phone him for your free trial supply, or send direct to The Frederick Post Company, Box 803, Chicago, Illinois.

Another POST Production Booster
PHONE OR WRITE YOUR NEAREST POST DEALER

INSTRUMENTS • EQUIPMENT • BLUE PRINT PAPERS
• KINDRED SENSITIZED PRODUCTS •



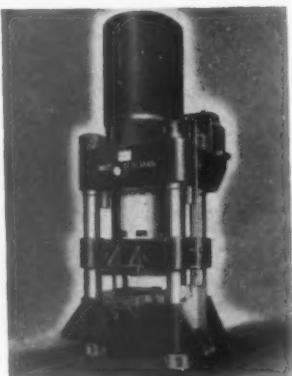
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(Continued from page 108)

generously proportioned and easily slip over crane hooks or lifting lugs.

The compact steel sleeves are compressed over all rope ends, thus permanently securing them. There are no splices, tucks or servings to become dislodged or loosened over sharp corners or in pulling underneath loads.

1300 TON FORMING PRESS



■ A 1300 ton forming press which can be automatically or manually operated has been constructed by the Watson-Stillman Company, Roselle, N. J. It is unusual among larger metal forming presses in its adaptability to single cycle automatic operation or hand control as required. The unit is entirely self-contained including 50 H.P. motor and radial piston pump delivering 45 GPM. Control is by a single lever latch-operated by a pressure cylinder.

The press is of the vertical 4-column type. Its ram of 35" diameter exerts a pressure of 2750 pound per square inch with a 22" stroke. Opening is 37" with a clear platen area of 48" x 42". Advance and return speeds are 650" per minute, with a pressing speed of 10.5" per minute. The entire unit, occupying floor space 8' x 6' and with an overall height of 19' is designated machine Number 8661, and weighs 80,000 lbs.

ALLOY SPRAYER

■ A low-cost, self-contained and portable metal atomizer, capable of spraying any neutral alloy which has a melting temperature of up to 600°F for protective coating, reproducing likeness, etc., is offered by Alloy-Sprayer Company, Detroit, Michigan.

Alloy sprayer is recommended for use in making templates, spotting or checking dies, reproducing molds, etc. It is especially suitable where accuracy of reproduction is so fine that even pin scratches must be faithfully reproduced and where the same operation needs a high speed of depositing metal for "backing-up" purposes. The sprayer, which is simple in design and thoroughly foolproof in operation, requires only connecting-in with electric power and factory air pressure line for operation.

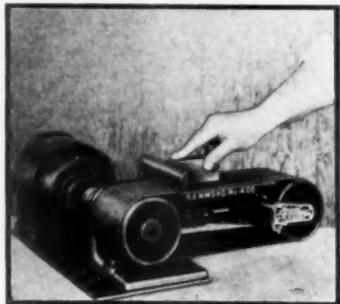
No special protection is required for the operator doing work with this sprayer other than that there be adequate ven-

tilation and this is usually arranged so that the sprayed metal can be recovered for re-use. Due to the peculiarity of atomized metal as deposited by this method, the operator doing the spraying can hold light weight work in his bare hands—without any danger of burning his hands.

Actual spraying is accomplished by merely pressing the trigger on the handle of the gun, allowing the air to either draw, or force, the metal through the nozzle of the gun. For work requiring extremely fine detail the knob immediately above the handle is turned to close a port into the pot and prevent air under pressure from entering the top of the pot. In this manner, only that amount of metal capable of being drawn off by the ejecting force of the air through the nozzle and working "against the vacuum in the pot" is sprayed. When the port is opened and air is permitted to enter the top of the pot, this additional air pressure combines with the ejecting force and thus increases the amount of metal deposited.

The Sprayer is offered complete with the gun (containing the electrical heating elements, insulated melting pot, control handle and nozzle). In addition, 15 feet of air hose to connect the handle of the gun with the pressure reducer and strainer at the air source and nine feet of cord with plug-in for the electrical connection is supplied with each gun.

BELT SURFACER



■ A bench-type belt surfacer for wet or dry buffing, burring, surfacing or polishing is being manufactured by Hammond Machinery Builders, Inc., Kalamazoo, Michigan.

The "400" is designed to reduce the number of rejects in lots of cast or moulded pieces, and to facilitate finishing work formerly done by hand. Versatility in the type and number of different materials successfully finished is an outstanding feature of the machine. Plastics, stainless steel, ceramics, hard rubber, stone, lead, aluminum, wood and many other types of materials may be finished on the "400". With the proper abrasive belt, the machine may be used for rough work such as removing sprues and flash from rough castings. With a different type belt, a fine luster may be developed on glass, pottery, plastics and like materials.

Simply, but sturdily built, all parts of
(Continued on page 112)

Helping Service... the Mobile Units of Our Armed Forces

Lubrication of trucks, jeeps, tanks, planes and all other mobile units — inflating tires — pumping gas — powering repair units — these are but a few of the scores of jobs on which Briggs & Stratton instant-starting gasoline motors are now doing their part—furnishing dependable power to speed up this work with our armed forces everywhere.



In the War Program of the United Nations, Briggs & Stratton 4-cycle, air-cooled motors are now giving the same kind of service that has made them world famous — "preferred power" wherever gasoline powered equipment is used.

If you are now planning post-war production of gasoline powered equipment, we would appreciate the opportunity of consulting with you.

BRIGGS & STRATTON CORP.
MILWAUKEE, WISCONSIN, U. S. A.



MORE PULL for PRODUCTION



"They Grip
The
Grooves"

New, groove-gripping unit jackets of special flexible fabric filled with tough, live black rubber . . . transmit maximum power from and to the sheaves. Parallel "Cable-Core" construction places load carrying cable-like cords in the neutral section where deteriorating "flexations" are at an absolute minimum. Stretch-taking section above "Cable-Cores" is of special extensible rubber compounds. Compression section below is designed to resist "crimpage" when belts are flexed around pulleys. Belts cured in precision molds to produce exact cross sections that will fit true in the sheave grooves.

For
Power Travel at Reduced Rates



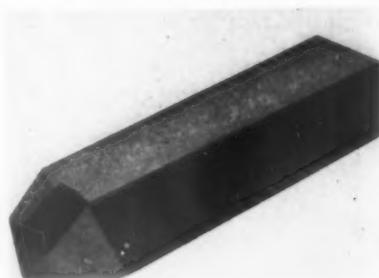
When writing The Medart Co. please mention Purchasing

(Continued from page 111)
this machine conform to machine tool specifications. Base of the machine is heavy cast iron. Belts, of which a wide variety may be used, are 4" x 35" endless type, running over 4" Drive and Idler pulleys with 4½" face. Each pulley is dynamically balanced and turns over dust-proof ball bearings. The belt is adjusted to proper position on the pulleys by means of two opposing thumb screws. For positioning work against the belt, a work rest, easily adjustable on a segment, is mounted on the frame slightly forward of the drive pulley and projecting over the belt. Power is furnished either by direct or V-belt drive from a 1/3 hp. motor operating at 1725 rpm.

The surfer operates in any position between horizontal and vertical, pivoting on center of the drive pulley and locking into position by means of a positive clamp on the base of the machine.

For wet surfacing operations, a sheet metal casing is fitted around the machine. Coolant is piped to the belt by a tube inserted through the side of the hood, ending in a spray nozzle which distributes coolant fluid evenly across the belt.

SHEAR TYPE TOOLS



■ Designed primarily to facilitate the machining of steel parts in which cuts are of the interrupted type and of prime advantage on large machines, Carboloy Co., Inc. of Detroit, Michigan has established standardized designs of shear type tools to simplify production and use of such tools. Shown in the accompanying photograph is one of the (right hand) standardized Carboloy shear type tools.

Shear type tools are characterized by a large negative back rake. This negative rake results in a shaving form of cut when used for turning or facing. Thus, when the tool is used for interrupted cuts, the impact load on the tool does not come at the end of the tip but farther back. Also, the entry of the cutting edge of the tool into the cut after each interruption is gradual, starting at the point of contact back from the tip and working forward to the tip of the tool.

These shear tools have been in use for some time, particularly in connection with the machining of the newer tough alloy steels, and sufficient experience has now been accumulated to standardize optimum shapes and dimensions. The line includes four basic sizes of tools in both left and right hand varieties, for a total of 8 types.

(Continued on page 114)

VICTORY IS OUR BUSINESS!

Aiding the United Nations to quicker victory with an ever greater tonnage of tough forged parts for tanks, planes, guns, ordnance and machine tools is our sole concern today.

Vastly increased facilities plus latest processing methods account for an ever increasing production of forgings that afford greater resistance to tensional, torsional and compression stresses. Tougher forgings make tougher machines—machines better able to withstand twenty-four hour daily service week after week—and better fighting machines to withstand long arduous hours of combat.

We're beating plowshares into swords and if long hours and untiring effort are a means to victory, we at Kropp Forge are doing our part in this business of winning the war!



Proudly we fly the Army and Navy "E" flag awarded for excellence and proficiency in the production of War materiel

KROPP FORGE COMPANY

Makers of Drop, Upset and Hammer Forgings for Ships, Guns, Planes, Tanks, Ordnance and Machine Tools

"World's Largest Job Forging Shop"

5301 W. ROOSEVELT ROAD, CHICAGO, ILL.

Representatives in Principal Cities



Making a heavy duty ship forging on a large steam hammer in the Kropp shops.

KROPP



Starrett Precision Measuring Tools are potent weapons in the hands of America's army of skilled plane production craftsmen. They contribute to the winning of the war in the same way as do the precision products they help to make — by justifying the confidence of their users — permitting them to make the most of their skill and experience and will-to-win . . . We shall continue to exert every ounce of effort to produce an adequate supply of the tools worthy of this responsibility.

**THE L. S. STARRETT CO.
ATHOL . . . MASSACHUSETTS, U. S. A.**

World's Greatest Toolmakers

STARRETT

PRECISION TOOLS • DIAL INDICATORS • GROUND FLAT STOCK
HACKSAWS • METAL CUTTING BANDSAWS • STEEL TAPES

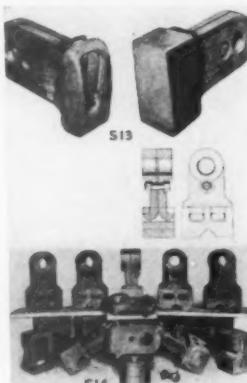
When writing The L. S. Starrett Co. please mention Purchasing

(Continued from page 112)

Shank sizes include 1 x 1 inch, 1 1/4 x 1 1/4; 1 1/2 x 1 1/2; and 1 1/2 x 2 inches. Blanks for the new standard sheer type tools are of special design.

All tools have a negative backrake of 40 degrees. All relief angles are finish ground. The rear corner of the tip projects slightly above the top of the shank. The purpose of this is to permit use of a tip thick enough to provide maximum re-sharpenings, while insuring adequate support thickness of shank steel below the tip of the tool.

PULVERIZER HAMMER



■ The Clark renewable tip pulverizer hammer (patent applied for) announced by the American Manganese Steel Division of The American Brake Shoe & Foundry Company, Chicago Heights, Ill., is designed for metal conservation.

The hammer consists of a weighted manganese steel head connected to the rotor by two matching arms or bars of manganese steel. On the lower end of each bar are hooks which engage internal pockets in the head. The bars are bolted together under the eye so that they form a one-piece arm; yet they are easily disengaged from the service worn head by unbolting.

Pictured (S-13) is a hammer as made and as worn in service. New complete hammer weighed 110 lbs.; arms 57 1/2 lbs.; head 52 1/2 lbs. Worn complete hammer weighed 74 lbs.; arms (still completely serviceable) 57 lbs.; head (scrapped) 16 1/2 lbs. Over two-thirds of the metal in the head was consumed in use before it was necessary to discard it.

Pictured also (S-14) is a set of new Clark Hammers of slightly different design, having the advantage of more bearing on the supporting shaft and visible hooks on shanks when assembled.

TOOL BITS

■ A line of tool bits for machining hard, tough steels and the copper or aluminum alloys has been made available.

These tools bits are made of the same metal that has proved its value to industry in the well-known patented Hardsteel drills—also used in Hardsteel reamers. This new metal has many advantages when used in tool bits. It has greater

(Continued on page 116)

"THE BEST
IS ~~NOT~~ ^{NOT} NONE
TOO GOOD!"



Perhaps you are wasting scarce alloying elements such as nickel, manganese and molybdenum by using higher alloy compositions than you actually require.

It is a fact that many users of stainless steel have been "over-buying" in alloys,—confusing *quantity* of alloy content with adequate *quality* and equal workability of the stainless material.

You may find that the *best* stainless tubing for your needs is *Pittsburgh Seamless* of straight Chrome analysis, such as the types 410 and 430, made in a wide range of wall thicknesses and in larger sizes than elsewhere available up to $10\frac{3}{4}$ " O.D. These analyses and sizes may not only increase the capacity and efficiency of

your installations, but will also produce comparable results in fabrication, installation and operation.

Our engineers are skilled metallurgists, ready to collaborate with your own technical staff, in selecting the right analysis for your specific needs. They can often help you conserve critical and expensive alloys by suggesting variations of straight-chrome stainless that serve equally well. Ask their expert opinion, without obligation of course.

PITTSBURGH STEEL COMPANY
1671 GRANT BUILDING PITTSBURGH, PA.



Pittsburgh Stainless STEEL TUBING

WHAT YOU SHOULD KNOW ABOUT PIPE HANGERS!

There is no place for guesswork in the selection of Pipe Hangers. The following excerpts from the American Standards Association Code for Pressure Piping give time-proved guidance to correct procedure.

MALLEABLE IRON CASTINGS may be used for pipe clamps, beam clamps, hanger flanges, clips and bases, swivel rings and similar parts of pipe supports, but their use shall be limited to such cases where the operating temperature of the pipe line will not be in excess of 450° F.

STEEL or WROUGHT IRON can be used throughout for hanger rods, turnbuckles, beam clamps, pipe clamps, supports, rollers, guides and bases.

GRINNELL offers an ENGINEERED PIPE HANGER

for each specific service . . .

MALLEABLE IRON ADJUSTABLE SWIVEL RING (Split Ring Type) — Underwriters Approved — Patented. Can be used with coach screw rod or machine threaded rod with practically any type of ceiling flange, expansion case, or insert. Swivel shank allows adjustment. No temporary support of pipe line is needed while making adjustments. Swivel shank locks automatically when pipe is in desired position. The hinging of the ring is off center, providing sufficient seating to hold the pipe before closing the ring.

WROUGHT STEEL ADJUSTABLE PIPE CLAMP — Underwriters Approved. Consists of two half-bands bolted together with Weldless Eye Nut and Bolt. When used with U.F.S. I-Beam Clamp with Weldless Eye Nut, provides for at least 3 inches of horizontal pipe movement in any direction per foot of hanger rod length.

For complete details, write for catalog of Grinnell Adjustable Pipe Hangers and Supports. Grinnell Company, Inc., Executive Offices, Providence, R. I. Branch offices in principal cities of United States and Canada.



GRINNELL
WHENEVER PIPING IS INVOLVED

PURCHASING

(Continued from page 114)

shock-resistance than most cast or cemented tools—minimizing breakage. It shows higher heat-resistance—permitting higher cutting speeds and deeper cuts.

These tool bits fit admirably into the present war production program wherever lathes, boring mills, shapers and planers with tool lifters work on hard or tough steels, such as the 4100 series, the high chrome, high nickel and high speed tool steels. This is also used on abrasive copper, brass, bronze and aluminum alloys, either rolled or cast. They are especially suited to work on heavy forgings where deep rough cuts can be made at faster cutting speeds, but at the same time, give excellent results when used as finishing or forming tools. They cut down scrap loss on many of today's critical metals.

They can be reground on an ordinary wheel time after time. But because they take abuse and operate efficiently at red heat, they need less frequent regrounding. Cases on record show that cuts per grind increased as much as 400% to 500% when these tool bits replaced high speed tools.

These tool bits are made square and round from $\frac{1}{8}$ " up in all the usual sizes. Made by Black Drill Co., Cleveland, Ohio.

FINGER PROTECTORS



■ In connection with the announcement of three chrome leather finger cots, the American Optical Company of Stockbridge, Massachusetts, points out that sturdy, dependable finger protectors are more and more replacing the use of makeshift strips of gummed paper, bits of cloth, and adhesive tape. Finger cots, the concern states, are particularly valuable where operators must handle small, rough objects or hot articles which are not too large in size as, for example, red hot radio tubes.

The AO 1000 chrome leather finger cot (short type) is recommended for operations in which only one or two fingers need to be protected, or where there is only an intermittent finger hazard. The second type, the No. 1001 chrome leather finger cot (tie-on type), is unusually large, and can be used as a dependable protection for a finger or thumb that is bandaged. The tie-on feature makes it applicable to a wide number of uses. The No. 1688 chrome leather two finger and thumb protector is recommended for operations where several movements require finger protection while succeeding movements require the accuracy and sense of touch of a bare hand.

(Continued on page 118)



CAST IRON FLANGES CAN BE SUCCESSFULLY SUBSTITUTED IN MANY PLACES

The war demands for forged steel flanges are greater than the ability of the shops to supply them. And the steel required is badly needed for other war production. The result is a rapidly developing "bottleneck" in much essential piping.

Cast iron flanges, on the other hand, are usually available on suitable priorities. Cast iron screwed and lap-joint flanges can be substituted with complete satisfaction in many places where operating conditions do not exceed 250 p.s.i. pressures and saturated steam temperatures.

As a part of its war effort, the Pipe Fabrication Institute has made a study to determine where such steel-saving substitutions will be advantageous. Member fabricators are ready to make recommendations on cast iron flange substitutions which will not impair piping quality.

Qualified pipe fabricators can help you get your piping more quickly... and at the same time give maximum cooperation to the war effort.



THE PIPE FABRICATION INSTITUTE



*Devoted to the Technical and
Economic Problems in Piping*

1108 CLARK BUILDING • PITTSBURGH, PA.

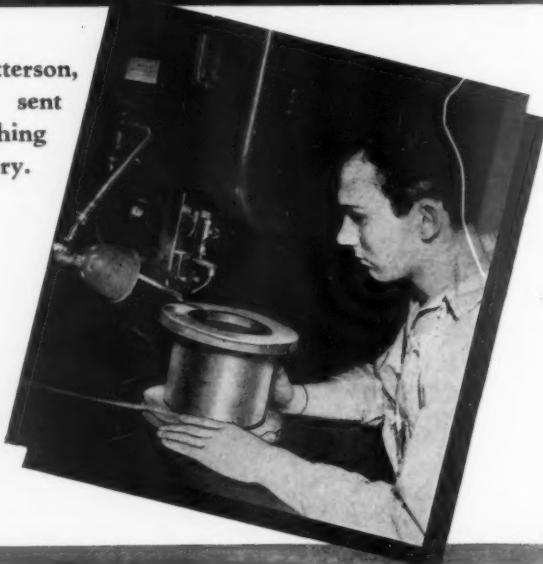
When writing The Pipe Fabrication Institute please mention Purchasing

YOUR SAWING JOBS PRE-TESTED

A typical case: Heyl & Patterson, Inc. of Pittsburgh, Pa. sent a 6½" bronze bushing through our Laboratory.

55 separate cuts were tried
4 different width saws
40 speeds
3 lubricants
Several pressures
Various angles

Result: Use a DoAll 8 pitch band saw, 2 temper, raker set, 1" wide. Tilt table 10 degrees and run at 100 f.p.m.



FIRST AND ONLY SAW RESEARCH LABORATORY OPEN TO INDUSTRY



This department contains different size and style sawing machines. The Photomicroscope shows grain structure of your metal in minute detail.

Exterior view of
Saw Research
Laboratory.

A clinic where hundreds of intricate sawing jobs are handled. This brand new building, with the most modern scientific apparatus is manned by top-ranking engineers. They determine the fastest and easiest method to saw any kind of metal, alloy, Masonite, magnesium, plymetal, etc. with maximum savings of time, metal and saw blades.

HAVE YOU A TOUGH JOB?

Send along the actual job for a series of tests by our experts. They will send you promptly a detailed written report with their findings. No cost or obligation.

DoAll BAND SAWS

Each 100-ft. coil comes in slotted metal box. Complete line contains 48 different styles ½ to 1" wide.

These hard-toothed little fellows last longer and are doing work in plants everywhere in ½, ¼ and even ⅛ the time of former methods. The finish is so smooth that further machining is unnecessary.

SEND FOR 32-PAGE BOOK
Contains illustrations and facts about actual performance records of DoAll Saws.

THE DOALL COMPANY

1201 Thacker St., DesPlaines, Ill.
Associated with Continental Machines, Inc.,
Minneapolis, Minn.



Pat. No. 2,255,577
Des. No. 127,313
Other Pats.
Pending

(Continued from page 116)

MULTITESTER

■ Maximum sensitivity, flexibility and utility are combined in a new vacuum tube multimeter recently announced by Radio City Products Co., Inc., of New York, N. Y. This versatile instrument is actually an electronic voltmeter, ohmmeter and capacitometer in one, with an extremely wide and useful range of applications in laboratory and production-line tests, service work, etc.

This product is a genuine vacuum tube voltmeter on AC... not a copper oxide rectifier type. It furnishes accurate and comprehensive capacity readings directly in microfarads, with a measurement ratio of 40,000,000 to 1.

In designing this multi-purpose instrument, RCP engineers forestalled all danger of shock on low capacity measurements. There are no test leads to short and no resetting is necessary when changing ranges. The meter cannot be damaged by checking a live resistor or by using a low range on high readings. Error due to line voltage fluctuation is eliminated by VR105-30 regulator tube and associated circuits.

While this model employs a sloping panel and 4½-inch meter, this company has also designed an upright-style companion model (No. 662-V-7) with a large 8½-inch rectangular meter, affording long scales for easy reading.

Both instruments have similar performance characteristics. Both are complete with leads and large, readily accessible batteries, tubes and pilot light. The rugged welded case is handsomely finished in crystalline gray.

RUBBER PRESERVING PROCESS



■ A completely revolutionary tank-dip process of preserving rubber has been announced by Transmotive Laboratories, Chicago, Illinois, automotive chemical manufacturer. It consists of a vegetable base preservative and specially constructed dipping tank for application.

The prolate system is claimed to preserve the elasticity and resilience of rubber; to fill the pores, cracks, minor cuts and abrasions; to seal the entire outside surface of the rubber against oil, grease, gas and air as well as rubber-destroying rays of the sun; and to restore new-rubber appearance. In short, it is said to effectively halt rubber-rot or oxidation.

The manufacturer emphasizes that the

new preservative is not a paint and is not applied by brushing. It is a penetrant of extremely low viscosity which permits speedy absorption by the rubber. It is made of a soya bean oil base compounded with a number of materials of acknowledged rubber preserving value.

Although the system is said to be applicable to the preservation of all sorts of rubber articles, its obviously greatest usefulness is in tire preservation. The specially designed dipping tank permits the application to tires while on the car. The application thus performed by immersing the tires is not only more adequate and uniform on all contours of tread and wall, but also is much faster than brushing and, according to the manufacturer, requires only from 20 to 30 minutes to treat all five tires on a car.

DRILLING MACHINE WITH SPECIAL EQUIPMENT



■ Snyder Tool & Engineering Company of Detroit, Mich., also build a standard drilling machine in which many features of special machine performance are included.

The unit shown in the illustration is the 10 V 18 general utility machine which has proved very successful in many special applications. Capacity up to 15 H.P., 1800 r.p.m. for driving tools. The maximum stroke is 18" and the opening between the base and the speed change transmission, (upon which, in this instance, a multiple head is mounted) is 36" minimum, 56" maximum. The maximum total hydraulic pressure feeding the hydraulic slide downward is 12,000 lbs.

The hydraulic oil is contained in a reservoir mounted on top of the column and on the inside of the column are housed the hydraulic pump, its motor, and the counterweight to balance the hand slide and multiple head. The unit illustrated is equipped for hollow milling 20 bosses, using a 5-spindle head and the fixture indexes 4 times to complete the work.

The standard index mechanism provides the smooth acceleration and deceleration of the Geneva wheel, hydraulically powered from the hydraulic system of the machine itself. The index table serves as a chip trough and coolant retainer.

This machine is available with or without special tooling and speed change transmission for single or multiple spin-

(Continued on page 122)

For maximum range in ACTION

WINTER BROS. CO.

WINTER TAPS

For maximum range in Action
ACCURACY is of extreme importance.
 The reputation of WINTER TAPS was
 built on their long range performance.
 Winter accuracy eliminates work spoil-
 age by better thread fits — saving vital
 metal parts which otherwise might be
 rejected.

A Division of
THE NATIONAL TWIST DRILL & TOOL CO.
 DETROIT, MICHIGAN



When writing Winter Brothers Company please mention Purchasing

MAKE 1 MACHINE DO THE WORK OF 2



Photo courtesy of Republic Aviation Corporation



One Wilson "Hornet" becomes two or more times more productive when used with the new Wilson "Honey Bee" Arc Control Stations. Two or more welding operations are performed simultaneously by connecting three 75 ampere Wilson "Honey Bees" to a 200 ampere Wilson "Hornet", or four 75 ampere "Honey Bees" to a 300 ampere "Hornet". More arcs per generator are provided with a better load factor and more welding per K.W.H. of power purchased.

Wilson Arc Control Stations are made in two sizes, 75 ampere and 150 ampere for use with any constant potential arc welding generator. Any Wilson "Hornet" can be changed to constant potential by making a simple connection.

A control switch which may be combined with the elec-

trode holder permits the operator to regulate his welding current from maximum to minimum without breaking the arc or affecting other station current settings. By gradually reducing the current the operator can avoid craters, especially important for light-gauge metal welding.

DIMENSIONS

	Height	Length	Width	Weight
75 ampere	20"	24 $\frac{1}{4}$ "	11 $\frac{1}{4}$ "	125 lbs.
150 ampere	20"	29 $\frac{1}{4}$ "	13 $\frac{1}{4}$ "	160 lbs.

For more complete information send for
Bulletin ADW-47.

Air Reduction

General Offices: 60 EAST 42nd ST., NEW YORK, N. Y.

IN TEXAS:

MAGNOLIA-AIRCO GAS PRODUCTS CO.

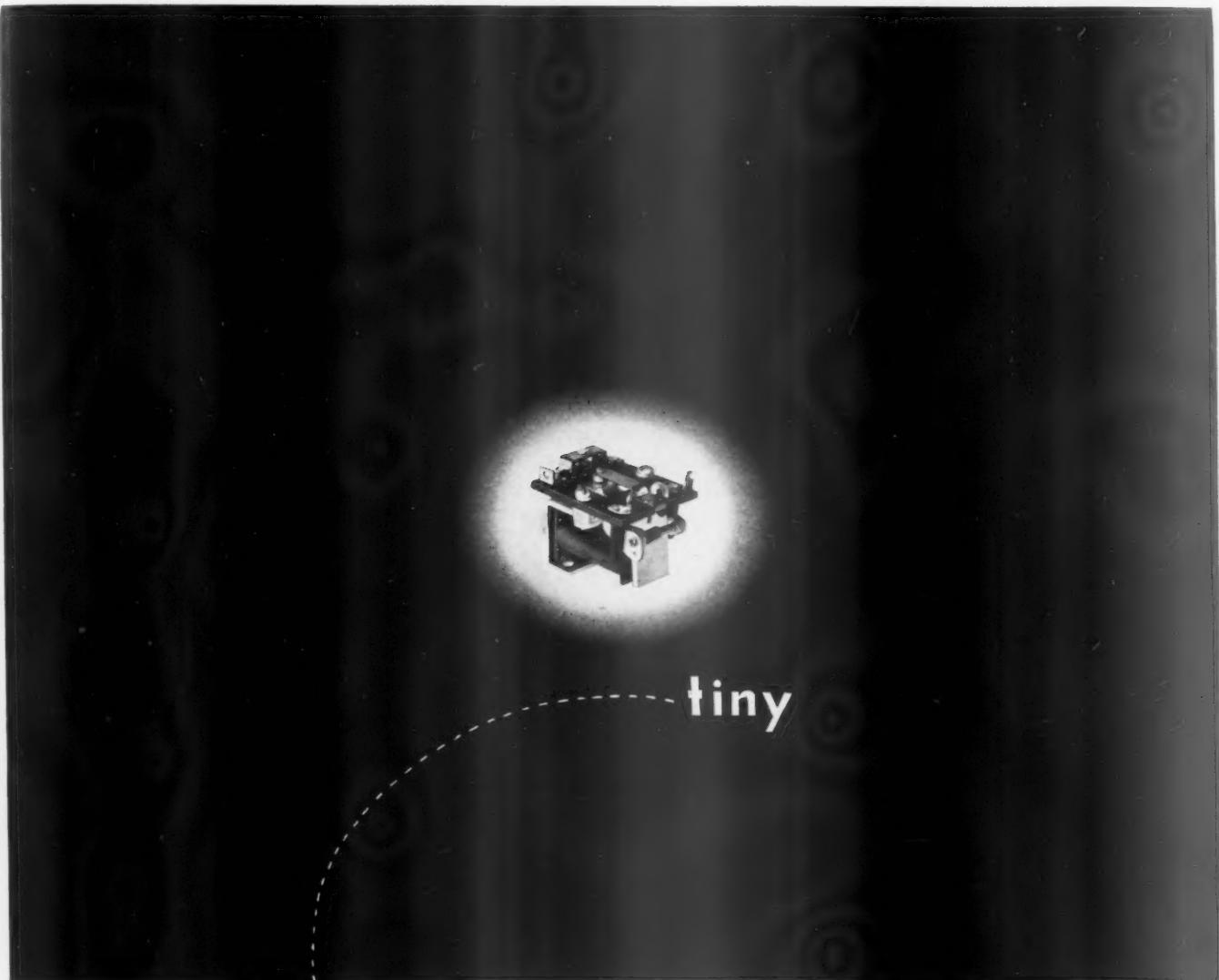
General Offices: HOUSTON, TEXAS

OFFICES IN ALL PRINCIPAL CITIES



OXYGEN IS PRODUCTION — Don't Waste it!

When writing Air Reduction please mention Purchasing



tiny
but **efficient**

Relay by Guardian

★ This tiny relay weighs less than an ounce but it's a cocky and energetic little bantam . . . full of life and fight—in a small way, of course—but plenty sufficient for its job in aircraft and radio where small size and light weight are at a premium. And tough, too . . . tough enough to withstand 10 g's vibration. Like to know more about it? A post-card will do—ask for Bulletin on the 195 series. No obligation.

GUARDIAN  **ELECTRIC**
1635 WEST WALNUT STREET CHICAGO, ILLINOIS

LARGEST LINE OF RELAYS SERVING AMERICAN WAR INDUSTRY

When writing Guardian Electric please mention Purchasing

(Continued from page 119)

able adaptations. Only the equipment is special and it can be re-tooled for entirely different production by changing the special equipment only. This machine is also available in sizes 20 V 16 with maximum 25 H.P. capacity for driving tools, 16" stroke and 19,000 lbs. total hydraulic pressure.

BLACKOUT MATERIALS

■ The possibility of air raids on America has created widespread interest in blackout materials. Anticipating this condition, the Philip Carey Mfg. Company, Lockland, Cincinnati, Ohio, made extensive study of the problems arising

from air raids and has developed a blackout material to meet the various requirements involved. Experience in other countries has shown that a blackout, to be fully effective, must consider two definite problems: (1) Prevent reflection of outside light on windows; (2) Provide protection from flying glass.

To prevent reflected light from revealing a target, Carey provides a Blackout Coating which is said to be non-reflective and to insure complete light stoppage with one coat. This coating is applied as a paint and is recommended for either inside or outside application, but is particularly desirable for prevent-

ing light reflection on the outside surface of skylights.

Application of any one of three types of blackout board is credited with effectively overcoming flying glass, at the same time solving the blackout problem. These boards, of laminated asphaltic composition, cut to window size, are recommended by the manufacturer for application to the inside of windows. They are of good rigidity; moisture and condensation proof; easily installed and quickly removable.

To meet the demand for a more permanent, weather-proof, exterior blackout treatment, this manufacturer has developed a thick film of asphaltic coating, in which is embedded an asphaltic-saturated fabric membrane, topping this with a finish of the asphaltic coating. This treatment, it is asserted, effects a complete blackout and renders the glass shatterproof.

ELECTRIC PREDETERMINED COUNTER



■ New opportunities for efficient count controlling are opened up through the flexibility and adaptability of electrically-operated predetermined counters developed by the Production Instrument Company, Chicago.

Any number from 1 to 9999 can be quickly set up on this instrument by simply turning knob pointers to the proper digits. When the count reaches the predetermined number thus set up, a control and signal circuit is closed (or opened). This circuit may be used to sound an alarm or operate a relay to perform any desired function. Counting ceases at the predetermined number until a reset lever is depressed (which requires less than half a second), making the instrument ready for a new count cycle. To change the predetermined number, the knob pointers are merely turned to the proper digits before resetting.

The counter is particularly useful in counting objects passing on a conveyor or delivered from a machine. Being electrically actuated, the counters may be located near to or at a distance from the things being counted. They are proving very effective grouped in a control room where one operator controls functions at distant points in a plant.

Electric predetermined counters are actuated by any switch, relay or photoelectric unit with a closed period of .035 second or more and an open period of .040 second or more.

WAR RUBBER COMES FIRST

Rubber is our most critical war material. With the rubber lid on tighter than ever—as it should be—Continental will only use rubber as our government tells us to use it. We are making extra sure that all rubber we use—whether natural, reclaimed or synthetic—is employed to the best possible advantage, without an ounce of wastage.

And that is what our long-time customers want us to do. They know it means sacrifice and hardship but that is to be expected when our No. 1 job is so vitally geared to victory itself.

From the Factory Bulletin Board of the
CONTINENTAL RUBBER WORKS
 MAKERS OF THE VITALIC LINE SINCE 1903
 ERIE, PA., U.S.A.

THE HAND OF THE SPECIALIST IS OFT
 REVEALED IN LITTLE THINGS.
 *of BIG importance

When writing Continental Rubber Works please mention Purchasing

WAR GAS EXTINGUISHER

■ The O. H. Adams Company, Milwaukee, Wisconsin, announced a fire and war gas extinguisher. Packaging is now under way and distribution will be completed by the end of October.

The Adams' extinguisher is recommended by the manufacturers as an effective fire extinguisher and as a decontaminator for the three major war gases: chlorine, which affects the lungs (highly pungent odor), phosgene, which affects the lungs (musty hay, green corn odor), chloracetophenone — tear gas (apple blossom odor).

The new product is also recommended and has been successfully demonstrated in combating automotive, airplane, industrial and marine fires, and is effective for household and factory fires, gasoline, cleaners, oil, paint and grease fires. The product is non-injurious and lasts indefinitely.

One cubic inch of the fire extinguisher upon contact with fire, has produced over 1000 cubic inches of fire-smothering gases.

HIGH BAY LIGHTING UNIT

■ A unit for lighting high and medium high factory spaces, airplane hangars, etc. is announced by the Sterling Reflector Company, Chicago, Ill.

This unit consists of a silvered glass reflector with the Sterling Lite-Flo Stipple in a metal housing with adjustable porcelain socket. The socket may be adjusted for efficient use with 750, 1000, and 1500 watt PS lamps, as well as for 400 watt mercury vapor lamps.

A unique feature is the housing design which provides air passage between the housing and the reflector, permitting circulation both inside and outside the reflector, which keeps temperatures at a minimum.

MIXING CHAMBER FOR TANK FIRE FIGHTING

■ This new chamber is designed especially for easy installation on modern oil storage tanks of the pressure type, it is announced by American-LaFrance-Foamite Corporation, Elmira, N. Y. Its purpose is to provide a simple yet effective method of applying a blanket of fire-smothering foam to burning oil surfaces.

The vapor-proof glass diaphragm is so installed as to prevent vapors in oil storage tanks from entering the body of the mixing chamber, from entering and condensing in chemical solution lines, or from escaping to the air when bottom or top plate, or inspection cap, are removed. The diaphragm, glazed in a metal frame, holds gas tank pressure, yet ruptures fully under foam pressure at time of fire, allowing free access of foam blanket to burning surface. Diaphragms are readily replaced. Frame may be unbolted and removed to work bench for new glass, or extra complete diaphragms may be carried in stock, ready for immediate installation.

A separate adapter flange is provided for mounting over foam opening in oil tank shell. Flange surface adjoining tank shell is concave to fit curvature of tank. The outer flange face is flat, to make up the outlet flange of the mixing chamber. The adapter flange may be fitted to oil tank during fabrication, and blanked off pending later chamber installation, if desired. The adapter flanged is furnished with studs for bolting in place. A foam deflector plate is in two sections, each with two supporting struts. It may be installed from outside of oil tank, through foam opening, and bolted in place.

(Continued on page 124)

2

FOUNDRIES

Ready to meet your
CASTING
NEEDS

● Transmission gear cover — a Forest City casting used by a large automotive manufacturer.

FOREST CITY has two efficient, modern foundries — both equipped to produce precision castings on schedule and as specified.

We can supply machine tool castings, such as gear boxes, drill press heads, gear box covers and housings in gray iron, semi-steel or high test semi-steel in sizes from a $\frac{1}{2}$ ounce to a half ton.

Send us your inquiries or ask for a representative to discuss your casting requirements.

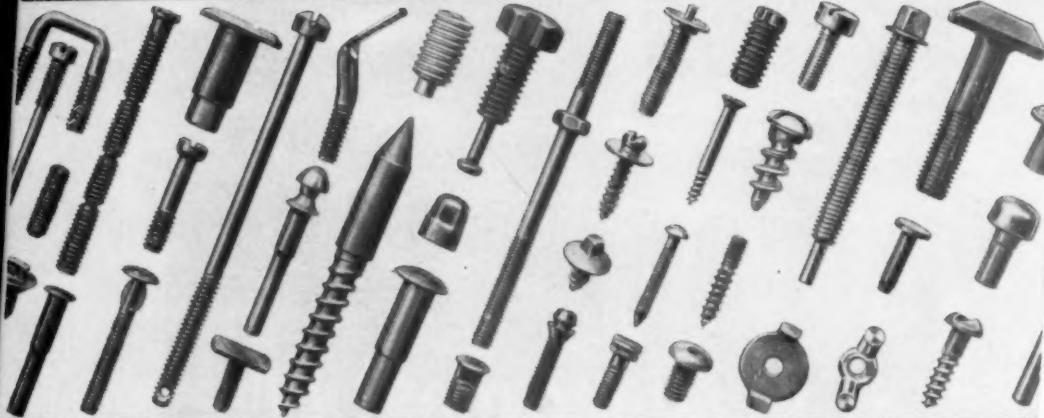
PHONE PROSPECT 5040

THE FOREST CITY FOUNDRIES CO.

2500 WEST 27th ST. • CLEVELAND, OHIO

Gray Iron,
Semi-Steel
and High Test
Semi-Steel
Castings

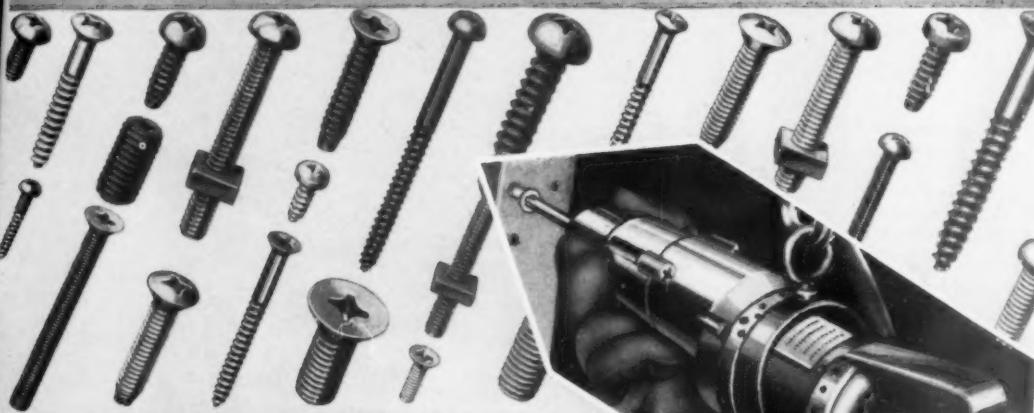
HOLTITE ENGINEERED FASTENINGS



From blueprint, to laboratory, to mass production—each step an engineering achievement—HOLTITE Screws, Bolts and Allied Fastenings are designed and produced with the uniform precision of small tools.

BUY WAR BONDS

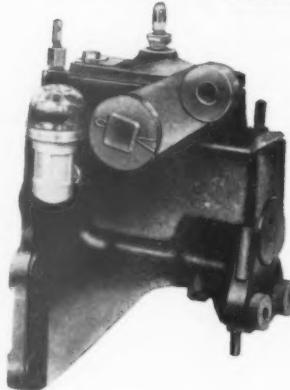
Extensive laboratories, completely equipped for metallurgic research, testing and production control assure every HOLTITE user of the most accurate, uniform and rugged fastenings science can devise.



HOLTITE-Phillips Recessed Head Screws and Bolts reduce fastening time and costs an average of 50%. Without danger of driver slipping from recess, electric and pneumatic driving tools can be used, even on finished parts, to safely speed assemblies and increase holding power. No spoilage, injuries or waste. Every screw driven straight automatically—every screw set up tighter without worry about split heads or dangerous burrs. Specify HOLTITE-Phillips on your next fastening requirements.

CONTINENTAL SCREW CO. NEW BEDFORD MASS. U.S.A.

(Continued from page 123)
AUTOMATIC OILER



To prevent waste of large quantities of oil, cleaning and decorating expenses, and eliminate fire hazards, building superintendents are rapidly replacing old-fashioned oil cups on their elevator door checks with Trico visible automatic oilers as shown in the picture.

This controlled method of oiling supplies only the correct amount of oil at the right time. Installation can be made quickly and inexpensively, and no attention is required except to keep a supply of oil in the reservoir. The crystal-clear bottle tells at a glance when refilling is necessary.

FLAME-RESISTANT VARNISH

The Sterling Varnish Company of Haysville, Pa., has recently developed a new flame-resistant insulating varnish, which is recommended for class B high temperature insulation.

This varnish is mechanically strong and dries all the way through when applied to electrical apparatus. After drying, this varnish will not support combustion, when the flame is removed, neither will it melt nor resoften under operating temperatures. In addition to good heat resisting qualities, it has all the characteristics of high-grade insulating varnishes.

PROTECTIVE GRILLE



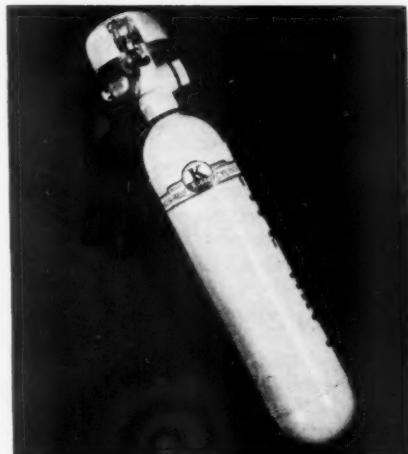
With today's increased demand for protection of doorways, the announcement by The Kinnear Mfg. Co. of Columbus, Ohio of a swinging type grille strikes a particularly timely note. It offers

(Continued on page 126)

We make lungs



FOR ONE-MAN RAFTS



HERE'S a new story coming out of the Pacific war theatre. We are beginning to read it over and over again. It is a good story, because it's about men's lives being saved . . . lives which would have been lost in World War No. 1.

Harold Dixon told the story first. He and his bomber crew floated for 34 days on a 4' x 8' rubberized, carbon-dioxide-inflated raft. Then Ensign Gay added his version. He clung to his Kidde raft and got a "fish-eye view" of the Midway sea battle. Now we hear of Aviation Machinist Winchell who drifted for 18 days, sharing his raft with his radioman.

These men owe their lives to rubberized fabric and to carbon dioxide gas. We handle the gas part. Walter Kidde & Company makes the carbon dioxide cylinders and

valves which turn a bundle of fabric into a buoyant life-raft.

Now the trend points to each man carrying his own raft in a parachute-type pack. A Kidde bottle, holding $\frac{3}{4}$ lb. of carbon dioxide, inflates the boat. We make the cylinder shatter-proof so it won't fragment, if a bullet hits it.

Thus, carbon dioxide tackles another war assignment. When you check all the jobs it is doing, carbon dioxide is certainly the hardest-working gas that man knows and uses. High-pressure gases are our special field. Kidde engineers stand among leading U. S. experts in storage, release, valving of gases under pressure.

If any aspect of high-pressure gases presents a problem to your technical staff, we hope you'll call us in.

Research and Development Department of

Kidde



Walter Kidde & Company, Inc., 1154 West Street, Bloomfield, N. J.

When writing Walter Kidde & Company please mention Purchasing

(Continued from page 124)

an economical device for barricading doorways without obstructing air, light or vision. Patterned after the rolling grille it provides an exceptionally strong grille. The grille proper is assembled in a heavy steel frame and equipped with steel encased cylinder lock. The grille is permanently installed by massive side hinges. Though not of prison design, it offers a high degree of comparable barricading strength.

The assembly of steel links and 5/16" steel rounds affords neat appearance as well as strength. Apertures are small enough to prevent admittance of a man's hand and yet large enough to allow maximum passage of air and light and permit

vision the full extent of the opening.

It is furnished in any size and is of a design suited to any style of building or structure.

BOX FASTENER

■ Manufacturers, shippers and carriers of ammunition and other heavy small items packed in wooden boxes are using a new box fastener which is a radical improvement over the old-fashioned hasp and hinge type of hardware.

This fastener is an invention truly mothered by necessity, for the antique component part method of keeping the lid closed was originally designed for doors, and is admittedly inadequate as a box fastening. Not only is the hasp and hinge

type a clumsy make-shift, but it is often unsafe and insecure for it does not make a tight closure, and with warping it is sometimes impossible to close the lid at all. This new type of fastener is so simple, so speedy, and clamps the lid down so very firmly, that the old-fashioned type will soon be as obsolete among box manufacturers as the horse and buggy. Moreover, this is a product in tune with these critical times, for it effects a saving in steel of 60%.

Other manufacturing economies are almost as noteworthy. Only five screws are required, as compared with 17. No cutting-in is necessary,—another labor saver. And in use, this is a tremendous time-saver; for the closing operation is almost instant, while a simple, upward movement releases the lid in a split second.

This box fastener produced at the plant of the Maximlok Company of Brooklyn, N. Y.

DEMOUNTABLE BARRACKS



■ The Travelodge Corporation, Lynchburg, Virginia, is now producing a demountable barracks building in 4-foot panels which provides a building 20 ft. x 100 ft.

Engineered by experts in housing, the demountable barracks building is easily erected, yet provides substantial space, light, ventilation and shelter, which can remain as a permanent facility wherever this feature is desirable.

Greatly enlarged manufacturing facilities enable this company to turn these buildings out at high speed production, and they are being supplied to industrial and military projects in many parts of the United States.

RADIAL SPOT WELDER

■ A radial-type gun spot welder, is now being offered by Sciaky Bros., Chicago, Illinois in both stationary and buggy-mounted units. It is equipped with a special welding timer and operates on single phase A-C, 220 or 440 volts. Hydraulic pressure is supplied by a hydro-pneumatic booster, which can feed a gun able to supply a maximum electrode pressure of 1,800 lb. with 90 psi of air supply.

Fixed or crowded jigs can be easily reached with the portable buggy-mounted welding gun. The maximum area reached by the stationary unit is represented by a circle of 21 ft. diam.

Secondary cables are thin, flexible and

HOW TO SEE ERRORS IN DIMENSIONS.

To see errors in dimensions as small as only .0002" or even as large as .002" by depending upon one's sense of touch alone is leaving a great deal to chance. Sense of touch cannot be magnified but vision can be magnified so that we can see errors quickly and accurately.

Visual or Dial Indicator Type Gages enable you to inspect several dimensions simultaneously and to determine the relationship of dimensions with each other. Here concentricity of the outside diameter is checked with the inside diameter. The lower indicator checks the squareness of the end with the axis of the inside diameter and the latter is checked for its own accuracy of diameter, roundness and taper. Try to do this with a "fixed" gage.

FEDERAL PRODUCTS CORP.
PROVIDENCE RHODE ISLAND

FEDERAL

Chicago • Cleveland • Detroit • Hartford • Los Angeles • Milwaukee • Montreal • Mexico
New York • Philadelphia • Pittsburgh • Rochester • San Francisco • St. Louis • Toledo • Toronto • Windsor

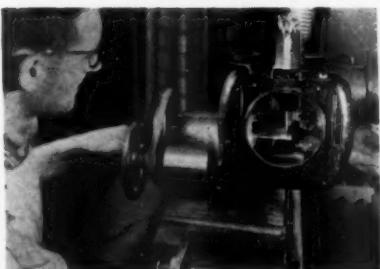
When writing Federal Products Corp. please mention Purchasing

short; the reduction in the usual size of secondary cables is made possible because of the use of fixed heavy copper bars (water-cooled) in the length of the secondary circuit.

In steady production conditions, this welder is capable of welding: corrosion-resisting steel, pickled steel, zinc-coated steel and Monel metal in thicknesses of from 0.016 in. plus 0.016 in. up to 0.064 in. plus 0.064 in. It will also weld two unequal thicknesses up to a total welded thickness of 0.500 in., provided that one of the two thicknesses does not exceed 0.040 in.

In welding pickled mild steel or standard steel, (a speed of 180 satisfactory spot welds per min. can be attained on thicknesses up to 0.032 plus 0.032 in. Speed decreases as the sheet thickness increases.

SUPER SIGHT



■ Four models of "SUPER SIGHT" adapted to close inspection, small parts assembly and precision machining are announced by . . . The Boyer-Campbell Company, Detroit, Michigan.

No. 95ZC has 2 magnifying lenses (top lens 5", lower lens 4"), lower lens adjustable to proper focus—lenses lighted separately, permits using one or both lenses as occasion demands. Head is balanced to bracket and can be instantly put in any position over a wide bench area. For Inspection.

No. 89ZC has one magnifying lens (5" diameter); head balanced to bracket enabling its use over a wide bench area. For Inspection, small parts assembly and bench work.

No. 89U has one magnifying lens (5" dia.); fitted with safety lens to protect magnifying lens when required. Equipped with universal brackets (T-slot or G.S. 114). For Precision Machining.

No. 44ZC has one magnifying lens (4" diameter); head balanced to bracket and can be used in any position over a wide bench area. For bench work and small parts assembly.

POLARIZED RECEPTACLE

■ The Wiremold Company, Hartford, Connecticut, announces development of two receptacles for installation in Wiremold #2100 Plugmold. This is a 3-wire polarized receptacle (10A 250V; 15A 125V) especially adapted for those installations where a solid ground is required for small tool motors. The universal type receptacle is designed to take plugs with either parallel or tandem blades.

With the use of these new receptacles,

the Plugmold plug-in-anywhere convenience wiring system is greatly increased in general utility for industrial installation to provide electrical service along work benches, work tables, inspection and assembly benches, etc. where the use of portable electrical appliances and tools is necessary.

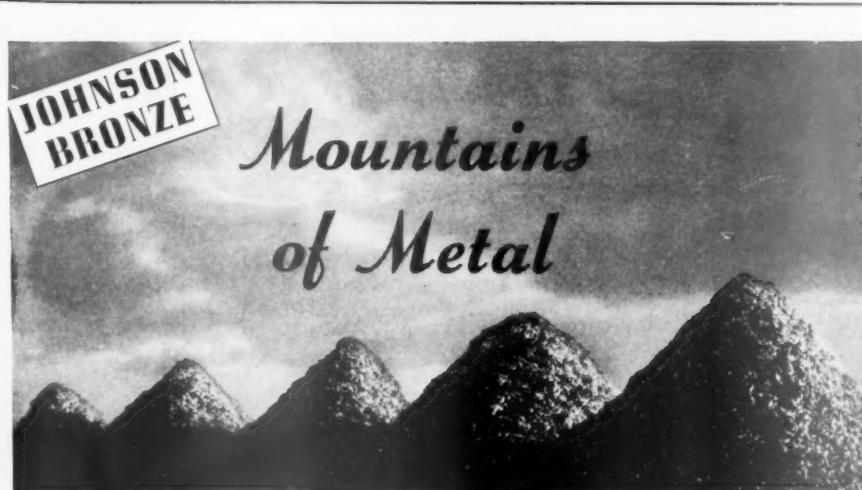
MARKING STAMPS

■ To meet conditions arising from triple-shift operation in defense industries, New Method Steel Stamps, Inc., Detroit, Mich., has designed and is producing a new type of Inspectors' stamps facilitating identification of parts.

Instead of carrying a variety of designs to identify individual inspectors or operators, the new stamps are numbered from 1 to 99, the numbers in each group being enclosed in identifying shaped borders. Thus, one group has the numbers enclosed in a square, another in a triangle, another in a circle, another still—if needed—in an oval.

The device makes possible assigning identical numbers with different borders to inspectors or operators doing identical work. It makes it possible for inspectors to identify the operator making the part,

(Continued on page 128)



that could help WIN the WAR

Every time you purchase Bearing Bronze in the "rough," you buy at least 25% more metal than necessary. Quality bearing bronze contains copper, tin and lead . . . metals that are vital to our war effort. When your purchases amount to tons, you actually remove mountains of metal from the active market.

You can easily avoid this waste . . . get a higher quality product . . . save many hours of machine time by specifying Johnson UNIVERSAL Bronze. Every Johnson bar is completely machined—I. D.—O. D.—ENDS. Our range of over 350 stock sizes enables you to buy according to your needs. Why not start today to help conserve metal? Your local Johnson Distributor can give you excellent service. His name will be found in your telephone book.



WRITE FOR STOCK LIST

JOHNSON BRONZE

Sleeve BEARING HEADQUARTERS

450 S. MILL STREET • NEW CASTLE, PA.



When writing Johnson Bronze please mention Purchasing

(Continued from page 127)

also to distinguish night from day shift operators or inspectors. Use of these stamps has a tendency to retard inferior workmanship.

The stamps are available in sizes ranging from 5/32 to 5/16 in. sized border—the standard sizes including also 3/16 and 1/4 inch.

100 LB. ENGINE FOR FIRES

■ This Almite carbon dioxide engine is the only 100 lb. engine approved by Underwriters' and Associated Factory Mutual Laboratories for use on both

electrical and oil fires.

It is also equipped with an Anti-Statik horn to protect the operator from static charge, according to the manufacturer, American-La France-Foamite Corporation, Elmira, N. Y. It is designed for perfect balance at wheeling height, has a third swivel wheel for easy maneuvering, and a retaining latch which releases horn instantly, yet holds it firmly in place when not in use.

It is recommended for fires in flammable liquids, alcohol storage, electrical machinery, and for other class "B" and "C" fires. It smothers fire instantly with carbon dioxide gas which expands upon discharge to 450 times its stored volume.

It is non-corrosive, non-poisonous, odorless.

FLOODLIGHT

■ Floodlights made by Commercial Metal Products Company of Chicago, Ill. are complete in all details, ready for installation, made of one-piece formed steel. Provided with heat resisting lenses insulated to prevent smoke, dust or rain from penetrating floodlight interior.

This company's new mounting method assures unlimited adjustment. Each floodlight is given a hard, baked-on plastic enamel surface (inside and outside), and due to its weather-proof construction, gives dependable and efficient service for outdoor floodlighting needs.

Fixed focus makes repeated adjustment unnecessary. This product can be installed so that they may be adjusted to almost any desired position. Available in all sizes from 200W to 1500W units.

PROTECTION AGAINST TIRE THEFTS



■ A simple, inexpensive, sure protection against tire theft worries is the LOK-ON-NUT. It is an ingenious lock that has no key, no tumbler, no pins, and no fragile parts, designed by Streeter-Amet Company, Chicago, Ill.

So small, it does not disturb wheel balance. It is a tough, hardened steel lock—not a fragile die casting that can be broken with a hammer—and of a shape that won't permit any known tool to get a grip on it. Installed by merely replacing one lug nut or bolt with a LOK-ON. Only the man with the "cap" part of the lock can take it off. For maximum protection it is designed in many different combinations. The simplicity and protection of this design will make it an important factor in reducing tire thefts.

GUMMED LABELS FOR METAL

■ After careful laboratory experimentation, there has been developed a special stick-to-metal gumming. This gumming can be applied to either paper or linen fabric upon which any message can be printed or written.

The Ever Ready Label Corporation of New York, N. Y. in the past few months has produced many labels for some of America's largest industrial plants. They use gumming on tools, products and machines. Stickers that carry inspection data, instructions, warnings, etc., while plain gummed labels are used mostly in office procedure for routing, scheduling, tabbing, etc.

AMERICA'S VICTORY DRIVE

1 SAVES RUBBER! Patented link construction gives Veebos greater flexibility although the rubber content of Veebos is less than half that of any other V-belt!

2 SAVES TIME! With Veebos in rolls, any drive can be replaced in the bat of an eye, keeping all belts on the drive!

3 SAVES POWER! Equalized tension on all strands can readily be maintained with Veebos link construction. Therefore, all strands are constantly at work delivering full power!

Let a Veebos "Production Warden"—especially trained in power transmission work—study your set-up for possible savings of rubber, time, power!

MANHEIM MANUFACTURING & BELTING CO., MANHEIM, PA.



When writing Manheim Manufacturing & Belting Co. please mention Purchasing

WATTHOUR METER PROTECTOR

■ For preventing damage due to lightning surge voltages, a new indoor watthour meter protector is announced by Westinghouse Electric and Manufacturing Company.

The unit has a line to ground rating cutoff of 500 volts rms, a 60-cycle gap breakdown of 800 to 1200 volts rms, and a discharge capacity of 20,000 amperes crest. Circuit voltage range is from 110 to 575 volts on 3 phase circuits.

Consisting of an assembly of porous block elements and series gaps, the protector is enclosed in a round aluminum case filled with a non-inflammable compound. The design can be mounted by a conduit through one of the knockouts in a connection box on which the watthour meters are mounted. The nipple on the protector is 1 1/4 inches long and is off center to move the protector for clearance if mounted under the connection box.

HYDRAULIC PUMP



■ The illustration shows a 6-Plunger, fully enclosed, horizontal, hydraulic pump—an addition to a broad line manufactured by the Charles F. Elmes Engineering Works of Chicago, Illinois.

The Pump is modern in appearance and embodies the latest principals of design and construction. All moving parts are pressure lubricated and the connecting rods run in a continuous bath of oil. Roller Bearings are used throughout.

Maximum capacity of the Pump is 400 horsepower. Herringbone gears, running in a continuous bath of oil, are used for driving the pump, insuring long gear life. The compact arrangement of the Pump is a space saver, and it is particularly adaptable for accumulator systems. The pump can be equipped with built-in bypass valves or safety valves, as may be desired.

TOOL STEEL

■ For many applications where extreme toughness is required above all other characteristics, the Jessop Steel Company, Washington, Pa., is now furnishing a water-hardening tool steel. It gives very good performance, especially for those applications classified as battering tools.

It has enough ductility, even with this important hardness and strength, that it will stretch more than 4% before it will break.

This product acquires a hard case and tough core when large and medium sizes are hardened. A 1 1/2" piece will have a fine grained case approximately 3/16" to

1/4" deep with hardness of about C-61/63 Rockwell. The smaller sizes (under 3/4") will harden throughout.

WATER TIGHT SOCKET

■ A water tight socket for marine work has been announced by the C. D. Wood Electric Company, Inc., New York, N. Y. This socket is made of a cold molded composition, outside diameter 2 3/4", total depth without contacts 1 1/2". There are 4 holes around the top circumference through which the holding screws are placed. These holes are 2 1/4" center to

center across the circumference of the socket. Socket takes a standard medium base Edison lamp, and meets specifications of the Maritime Commission.

ALMOST UNBREAKABLE PENCIL

■ To eliminate pencil point-breakage, bogey of all pencil users, Reliance Pencil Corp., Mt. Vernon, N. Y., has pioneered in producing an almost unbreakable pencil. Unlike ordinary pencils, this one actually will not break in use. To break the point, a pressure of almost ten pounds

(Continued on page 131)



FASTENINGS YOU CAN TRUST

1. **Application is fast and fool-proof...**
Their locking action is immediate and automatic... no pins, no washers, nothing to forget.
2. **Grip is positive, yet resilient...**
Threads of nut and bolt are held in contact under constant cushioned pressure. The nuts stay put.
3. **The locking element does not fail...**
Made of non-metallic, non-fatiguing material, it cannot be broken down by vibration or prolonged hard service.

There are more Elastic Stop Nuts on America's airplanes, tanks, guns, Naval vessels, and production equipment, than all other lock nuts combined.

» Write for folder explaining the Elastic Stop self-locking principle
ELASTIC STOP NUT CORPORATION • 2337 VAUXHALL ROAD • UNION, NEW JERSEY



When writing Elastic Stop Nut Corporation please mention Purchasing

When the going gets tough!

**Use these
TOUGH
FASTENINGS**

Desert Heat, tropic sweat, arctic sub-cold, ocean salt—they're all alike to tough Harper Fastenings.

That's why these versatile workers have been drafted for service in tanks, ships, planes—wherever fighting equipment has to fight rust and corrosion, extra stress and strain.

WELL NAMED "EVERLASTING"

Harper Fastenings—bolts, nuts, screws, washers, rivets and special items—are made only of brass, bronze, copper, Everdur, Monel or stainless steel.

4320 STOCK ITEMS

Harper Service is unique for the tremendous stock, including many hard-to-get items—and special machinery for turning out off-standard items with unusual speed.

A REFERENCE ESSENTIAL

Harper's Catalog is actually an invaluable reference volume—80 pages, 4 colors, 193 illustrations, packed full of useful data. Simply ask for it on your company letterhead.

The H. M. HARPER COMPANY,
2606 Fletcher Street • Chicago
45 Broadway • New York City
Offices in Principal Cities

BRASS
BRONZE
COPPER
EVERDUR
MONEL
STAINLESS

Scheduling Purchases and Deliveries for War Production

(Continued from page 72)

The arrangement was, first by commodity groups of related materials, a horizontal block of hooks being assigned to each group such as "Wire", "Steel", "Subcontracts"—these being the largest classifications. Some smaller groupings required only a single vertical row. "Miscellaneous" materials were grouped at the right end of the board. Within each classification, the items were arranged alphabetically (vertically) by the supplier's name. A supplier might have several cards, according to the number of items ordered from him.

At the start of the order, all of the top, visible cards were yellow, as initial deliveries were awaited in July. From the daily receiving record, receipts of material were posted to the various cards, and as soon as the deliveries scheduled for July were completed on any item that card was removed and filed, bringing the green August card to the top position, or a later card if no deliveries were scheduled for that month. As the month drew to a close, it was thus possible to see at a glance what particular items were even slightly in arrears and where special attention must be applied to keep materials in balance with the manufacturing schedule.

During the month of August, the general complexion of the scheduling board changed from green to salmon, and so on from month to month. During November, the board will be predominantly blue. To that extent, it will show that materials are being received as scheduled, and that the materials program is well under control. In a few instances the visible cards will be pink or canary, showing that the next deliveries are due in December or January and there is no cause to worry on that score. The few cases where a salmon or manila card is still showing, indicate that there has been a failure on the part of the supplier to meet his promise and that the materials are overdue. The space for "Remarks" indicates what action has been taken, the new delivery promise, etc.

Color Code a Constant Warning

There is little opportunity for serious complications of this sort to develop, for the color code gives prompt warning. The constant up-to-date knowledge of just what can be expected on each item permits adjustments to be made in the manufacturing plans during a minor delay, or alternate materials to be sought from other suppliers as an emergency measure, or assistance to be asked from governmental agencies if necessary, as circumstances may indicate. If an occasion should arise where no such adjustment is possible, the armed forces can be advised of this condition which may affect the company's own ability to deliver the products on scheduled time.

When complete delivery has been made on any item, the last card is removed from the board. Some time is made, the board will be clear, indicating the successful completion of the procurement responsibility on this contract. Meanwhile there has been a positive control over every component material and subcontract, and there has been no hoarding or misapplication of materials to the detriment of any other company working on war contracts.

This system is particularly applicable to a single contract, definitely scheduled for production over a period of time. If it is to be used for other contracts, separate boards would be set up, based upon the bills of materials and manufacturing schedules of those contracts. The experience with this material and production program has been so successful that this will doubtless be done whenever the size and importance of the project warrants it. The presentation is so comprehensive and dramatic that the Purchasing Agent can get a complete picture at a glance, and can answer many of the questions which might arise without leaving his desk or telephone for closer reference; at the same time, the essential data is so complete in detail that it avoids the necessity of finding and checking original records.

The plan was devised, on a somewhat experimental basis, to fit the needs of a particular company on a particular contract. Being basically sound, it is capable of being adopted with a minimum of change for any type of manufacture, and will prove an effective means of meeting production schedules while conserving materials to their most complete utilization in the war effort.

When writing The H. M. Harper Company please mention Purchasing

(Continued from page 129)

must be exerted, and even the most persistent point-buster isn't that strong.

By actual test, this pencil withstands pressure of more than 250 times its own weight. The point is reinforced by using a patented lead and a special process, fusing the wood and lead.

Excellent for office use or drawing (six graded degrees for every requirement), and because of its strength, is also ideal for carbon-copying, as the lead gradation is soft enough to make legible originals, yet strong enough to hold up under pressure necessary to make multiple copies.

IMPROVED FINGER GUARD



■ The steel-grip finger guard, designed and introduced by Industrial Gloves Company of Danville, Illinois a short time ago, has now been improved for certain types of punch press work, sanding, burring, grinding, buffing, assembly, etc.

The new feature in this new design as shown in the illustration, is the added leather section over the back of the finger—at the tip end. This assures the operator of protection on the back of the finger, (or thumb) as well as the front.

Adaptability for different sized fingers, comfort, flexibility and close cool fit, are obtained by the manufacturer's use of special elastic webbing on the back. This genuine leather finger guard affords long wear and sturdy protection; speeds up handling of material and eliminates those minor but costly finger injuries. Used successfully by both men and women on a wide variety of production jobs.

GLUE

■ The L. B. Allen Co., Inc., Chicago, Ill., have produced a complete line of glues which have been offered for many years in small package sizes, and which are now available in larger, and bulk units for the growing industrial demand.

"Soderglu" is a relatively new product which will join like or unlike materials of wide variation in texture, and type. Wood, leather, metal, bakelite, cork, cloth, fabric, canvas, crockery, and many others

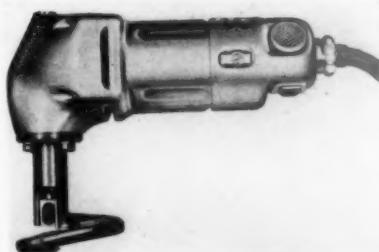
are among the products joined. It is similar to solder in appearance, but is in reality a cement adhesive of exceptional strength.

"Glasglu" is a product closely related to "Soderglu". "Glasglu" will do everything that "Soderglu" will do, but is transparent in appearance, rather than silvery solderlike in color.

Old fashioned liquid fish glue is about the best known of the glues. A dependable, strong lasting bond can be readily made with their liquid-fish glue.

Send for free samples and additional information on the above.

LECTRO-SHEARS



■ Both the 16 gauge and 18 gauge Lectro-Shears have been re-designed by

(Continued on page 132)



Guard precious war drawings with this special-process tracing cloth



Mistakes mean delays, and America's wartime job is to speed production! Give war jobs the best! That means specially-processed Arkwright Tracing cloth. Arkwright is made by a highly technical method on costly machines. The surface is clear, smooth—never "humpy." Ink lines won't spread or "feather"—nor crack or chip in drying. Years from now, drawings will be fresh and clear—truly permanent! Guard your war work this way. Arkwright Finishing Company, Providence, R. I.

Arkwright TRACING CLOTHS
AMERICA'S STANDARD FOR OVER 20 YEARS

(Continued from page 131)

the Black & Decker Manufacturing Company, Towson, Maryland, to improve their ease of handling and operating characteristics.

The No. 18 has been reduced in outer dimensions, so that the motor housing forms a comfortable operating handle. This greatly reduces the length and weight of this tool, and vastly improves the operating balance and control. The power and capacity of the tool are the same as in previous models, cutting up to No. 16 gauge sheet steel.

The larger No. 16 Lectro-Shear has been equipped with an improved operating handle which gives this tool better balance

and easy control on curved and irregular lines. It is equipped with an instant release trigger switch, with locking pin for continuous operation. The handle is so shaped that it can be used over the toe or at the rear end. The power and capacity of this tool are the same as in previous models, cutting up to No. 16 gauge sheet steel.

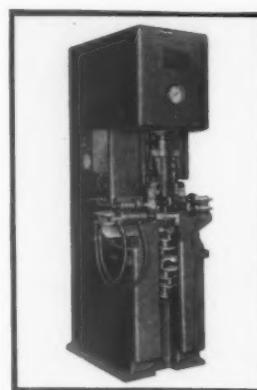
FIRE - EXTINGUISHING POWDER

■ A few handfuls of a new fire-extinguishing powder made by the Halco Chemical Corporation of New York, N. Y. thrown at any fire puts it out instantly. Thus, American ingenuity meets the increasing danger of destruction by

fire with a new method that is faster, surer and acts with no water damage. This powder has proved remarkably effective against all types of fires such as, gasoline, benzine, naphtha, tar, grease, oil, electric, acetylene gas, chimney and forest fires, etc.

In recent tests, it has put out the fire caused by an incendiary bomb in seconds. It is so simple to use that a child can handle it with perfect safety. No equipment is required. It is non-poisonous and contains no noxious gases. It is packed in 2½ pound containers for home use, in 10 and 40 pound cans for industrial use.

HYDROILIC CRANK SHAFT ASSEMBLY PRESS



■ Recently built and supplied to one of the automobile manufacturers by The Denison Engineering Company, Columbus, Ohio, this hydroilic press assembles keys and timing gear on automobile crankshafts. The press is a special modification, or adaptation, of one of the manufacturer's standard line of small-capacity hydraulic presses which were recently developed and designed suitable for modifying to meet a wide variety of special production pressing requirements.

This particular press is of 5-ton capacity and is entirely automatic. The crank shaft is locked in place and the keys fed into the press through magazines. Four cylinders assemble the two keys and the timing gear is pressed into place by the ram. A special safety feature halts the operation of the ram if the keys are not pressed into place properly. The equipment is also arranged so that if the timing gear does not fit, the pieces are rejected.

THREE-WAY BUTTERFLY VALVE

■ Quick action is provided in a three-way valve of the butterfly type made by R-S Products Corporation. It is designed for mixing and quick interchange service and adapted to fully automatic control by means of an air diaphragm motor or hydraulic cylinder.

The valve is constructed of cast steel or cast iron for pressures up to 600 p.s.i. When desirable, special metals for resistance against heat, abrasion and corrosion

(Continued on page 134)

NON-CRITICAL NON-PRIORITY

Bastian Made

FIBRE-LITE

Nameplates-Dials Instruction Plates Serial No. Plates Etc.

Ideal substitute for metal plates. Tough, resilient, non-inflammable, high dielectric strength, not brittle, will char at flame temperature, insoluble in water, gasoline, oil and most solvents. These plates are now being used by country's leading manufacturers and U. S. Government. Available printed, die-embossed, or stamped; dull or polished finish. Can be stamped or engraved with serial numbers in exactly same manner as metal plates.

We are also producing for many firms —
LAMINATED ACETATE CELLULOID AND VINYLITE PLATES
These type plates, however, require a priority rating.

Solve your problem of plates or dials by getting detailed information from the Bastian man. Offices in principal cities, or write —

BASTIAN BROS. COMPANY
1945 Bastian St.

Rochester, N. Y.

When writing Bastian Bros. Company please mention Purchasing

NOVEMBER



OEM Photo by Palmer, in an Allegheny Ludlum Plant.



FOR ALLOY STEEL

[*Accurate to $\frac{1}{1000}$ of 1 per cent*]

QUALITY in the manufacture of stainless steel—that is, high fidelity to the properties required, and consistent uniformity over shipment after shipment—requires constant control and research.

In Allegheny Ludlum laboratories, chemists weigh the elements of each stainless melt to determine its exact composition. Analysis is determined to $1/1000$ of 1%, for each element in the steel. Nothing is left to chance that will prevent waste

of these vital alloys, or protect the faithfulness of the steel to specifications.

That is the background of Allegheny Stainless when it comes to you as a raw material. And it's only half the story. The major importance today lays in what you *do* with the steel . . . how fast you turn it into finished war equipment and parts; how little of it is wasted in rejects or spoilage. Stainless steel is a critical material; even the use of

a high alloy, where a lower one would do the job, is a loss out of the nation's reserves.

- Can you improve your use of stainless, either to save time or material? All of our technical resources, printed or personal, are ready to help you.



Allegheny Ludlum
STEEL CORPORATION
GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA

(Continued from page 132)
erosion can be substituted with a consequential saving in cost.

A special feature of the valve is the self-cleaning, double-beveled, streamlined vane. It seats wedge-tight against the body of the valve thus producing a tight shut-off as well as positive control of volume and pressure. For inaccessible locations, a reach rod with de-clutching unit is provided for automatic operation or manual control in case of power failure.

MIDGET AIR POWERED PUMP

■ The Eastern Engineering Company, New Haven, Conn., announces the addition of a new model to their line of midget size

pumps. Its air powered motor makes it positively explosion proof.

The pump can be used in all industrial pilot plants, laboratory and experimental applications where an explosion proof unit is necessary and where compressed air is available. This unit is also ideal where variable performance is necessary, as it is controlled by varying the speed of the air motor.

Size is $5\frac{1}{2}$ " x 6" x 7", and weighs 10 pounds. The motor is a $\frac{1}{4}$ h.p. ball bearing air motor (Vane Type). Air consumption 5 cu. ft. per minute at maximum speed. 4000 r.p.m. maximum speed on 100 lbs. maximum air pressure. Motor air in-

let $\frac{1}{4}$ " IPS, outlet $\frac{3}{8}$ " IPS. Equipped with exhaust silencer and oil catcher. The stuffing box is accurately adjustable by means of an easily accessible adjustment ring. Pump impeller is mounted on end of motor countershaft thus making a coupling unnecessary and assuring perfect alignment. Nozzles are threaded for $\frac{1}{4}$ " standard pipe fittings.

Pumps are available in stainless steel, monel metal, chromium plated bronze, brass, cast iron, hastelloy and other alloys.

TWO AND THREE SHIFT DRAWER INSERTS



■ Efficient individual storage of tools, records, or personal effects for workers on two and three shift operations with Lyon's new two and three drawer units.

These units may be furnished on work benches, tool stands, shop desks, and under counters. Drawers feature easy sliding and flat key locks.

Additional information upon your request to Lyon Metal Products, Incorporated, 3097 Clark Street, Aurora, Illinois for catalog No. 331-D.

WOODEN CABINETS



LOCKERS



SHOPROBE
(PAT. NO. 2,202,427)

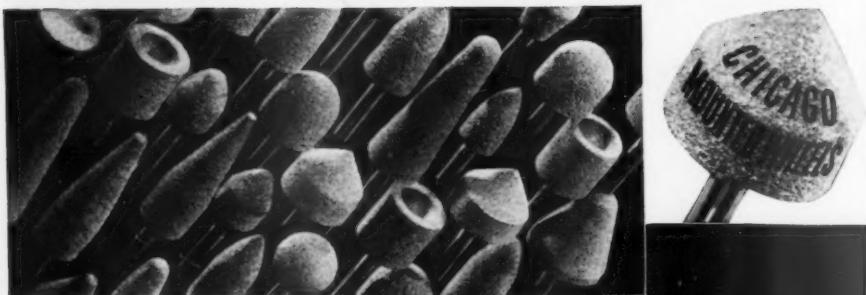


ENGINEERED IN
WOOD
FOR THE DURATION
CABINET

■ Three products necessary in war-time industries but eliminated by steel priorities are now offered in wood by Lyon Metal Products, Incorporated, Aurora, Illinois. They are shoprobes, lockers and cabinets.

The portable shoprobes provide full
(Continued on page 136)

POLISH 'EM OFF WITH



They're TOUGH and DO Their STUFF!

Commandos of the grinding wheel industry — the first small wheels mounted on steel shanks and leading the way today with smoother, more rapid grinding, polishing and finishing of difficult jobs.



Chicago Mounted Wheels—the result of 45 years of KNOW HOW—come in a wide range of styles on different size shanks, for use with any portable or flexible shaft grinder. Several special-formula abrasives give 150% to 300% longer service. More than 200 shapes, all mounted and ready to go.

HI-POWER GRINDER

A real production tool — a 3-pounder with enough power to drive a $2\frac{1}{2}$ " diameter wheel. 17,000 r.p.m. In case with accessories, \$38.50.

Latest Catalog — Packed full of comprehensive information and pictures. You'll be interested. Send for copy.

CHICAGO WHEEL & MFG. CO.

Makers of Quality Products Since 1896

118 S. Aberdeen St. Chicago, Ill.

TEST WHEEL FREE

If you have a grinding problem, send for a Survey blank, which you'll find easy to fill out. Upon its return, our abrasive engineers will analyze it and send you without charge the trial wheel they recommend for your particular job.

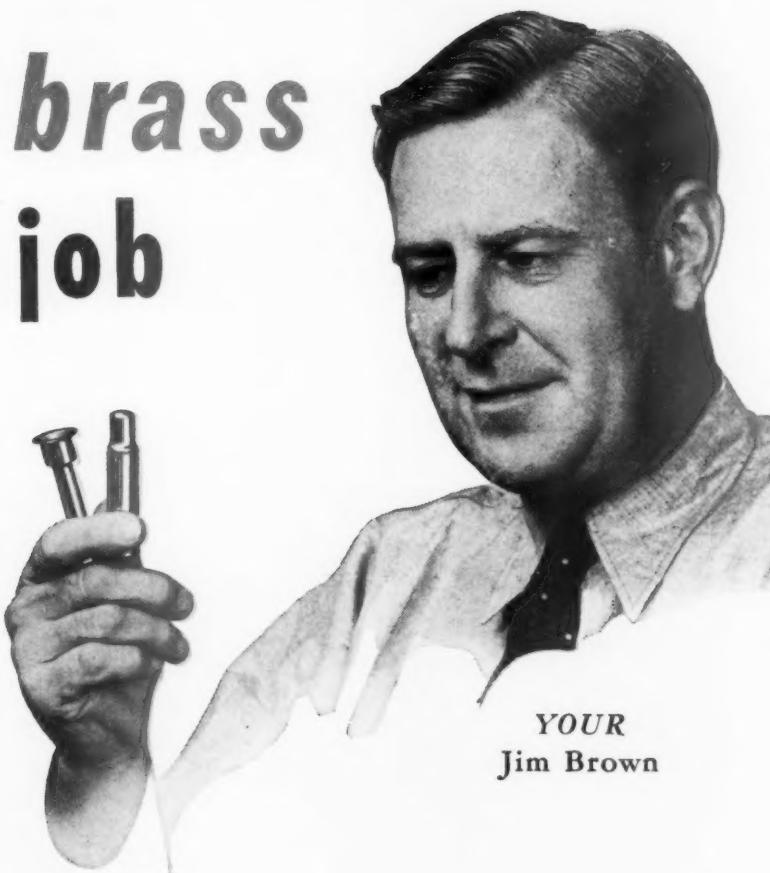
Send Hi-Power Catalog 118-10
 Free Wheel. Size

Name

Address

When writing Chicago Wheel & Wire Mfg. Co. please mention Purchasing

The *right* brass for the job



The problems of *your* Jim Browns and our Bill Smiths may be the same

YOUR men and ours are putting their all into the battle for greater production. Their knowledge of brass and its war requirements is helping to win the fight for freedom.

Perhaps your problems and ours are fundamentally the same. If yours involve deep draws in brass, special degrees of softness or hardness, or extremely close tolerances, we will gladly give you the benefit of our long experience in specifying *the right brass* for your job.

Western-operated ammunition plants are making millions of deep drawn parts *daily* out of Western brass. The metal in each cartridge case must possess the right ductility, and the correct tensile strength to draw without rupture.

We invite consultation on your brass requirements for present and post-war products.

BRASS MILL DIVISION

Western Cartridge Company

East Alton, Illinois

BRASS •

BRONZE • PHOSPHOR BRONZE • NICKEL SILVER

When writing Western Cartridge Company please mention Purchasing



(Continued from page 134)
 length coat hanging space and a private locking compartment at a convenient height for each employee. Shoprobes are suited to industries in which personnel fluctuates and low storage cost is required. 20-person unit (double-faced) requires only 13-3/5 square feet of floor space. 10-person unit (single-faced) requires only 6-4/5 square feet.

The lockers have a hardwood top, bottom and frame. The sides, backs and doors are pressed wood. The doors consist of two panels of pressed wood mounted on a hardwood frame. There are five stock sizes available—four single tier and one double tier.

Tops, bottoms and frames of the cabinets are hardwood. Backs and sides are pressed wood panels. Doors are made of two pressed wood panels mounted over a hardwood frame and attached with three tight-pin hinges. These cabinets are

offered in three types—storage, wardrobe and combination—and in two sizes: 36" x 18" x 72" and 36" x 24" x 72".

All of the above units are finished inside and outside in green enamel.

SIGNAL ARRESTER

Especially designed for protecting low voltage, low energy systems against insulation breakdown and apparatus failures, an improved single pole signal arrester is announced by Westinghouse Electric and Manufacturing Company.

Known as the RV Autovalve arrester, the unit is fast in operating and capable of discharging high currents without failure. Applications on d-c circuits up to 75 volts and a-c circuits up to 175 volts can be made.

Simplicity is the keynote of the arrester construction. The internal elements con-

sist of a porous block with a series gap formed by a mica spacer separating two metal electrodes. A plate spring holds these elements firmly in place in a dust and moisture proof Moldarta cover.

The high 60 cycle arrester breakdown of 800 volts rms permits testing of signal circuits with a 500 volt megger. Since the impulse breakdown is only 2200 volts crestvalue and the discharge voltage during discharge of 1500 amperes on a 5-10 micro-second wave is 1660 volts crest, protection of the usual signal circuit insulation is assured. Ample discharge capacity of more than 10,000 amperes provides protection from lightning surge currents. Repeated discharges do not impair the arrester's characteristics.

LITHARGE AND GLYCERIN REPLACEMENT

Litharge and glycerin being produced today is now being used almost entirely in the manufacture of explosives and other war material.

Industrial firms who have been using litharge and glycerin as a pipe joint compound and for other sealing applications have been demanding an efficient substitute which can be obtained in sufficient quantity to maintain plant efficiency.

It is the only compound that expands as it sets. It is offered for use in ammonia brine, oxygen, and freon lines and works perfectly as a seal for all types of joints in all types of metal pipe. It will carry anything that can be carried in metal pipe and resists deflection, high pressure and high temperature. Its expanding action corrects imperfection in threads and makes flanged faces smooth. In spite of the fact that it expands as it sets forming a leak proof joint, X-Pando Pipe Joint Compound makes a joint which can be easily taken apart.

The compound goes 4 to 6 times further than ordinary compound and is much less expensive than litharge and glycerin. Product of X-Ponds Corp., L. I. C., N. Y.

COOLANT PUMP SYSTEMS

A complete line of portable coolant pump systems known as Spiegel-Spray is being manufactured by the G. B. Spiegel Corp., Chicago, Ill. Suitable for 24-hour production use on lathes, screw machines, drill presses, grinders, milling machines, for various finishing operations, tapping, etc.—these pumps range in capacities from 150 to 1500 GPH with tanks from 3½ to 15 gal.

Special features include: non-clogging centrifugal pump with no gears or close-fitted parts to wear or jam; no metal to metal contact; removable strainer; completely portable, self-contained unit; accurate flow control valve delivering just the right amount of coolant with a spray nozzle to deliver the coolant exactly where it is needed.

Speeding up production—to as much as double—and increasing tool life as much as 300% cuts costs way down according to tests run on actual shop operations.

When writing The Harshaw Chemical Co. please mention Purchasing

PERSONALITIES in the NEWS

Ernest R. Dondorf, manager of the metals purchasing department of the National Lead Company, New York City, was guest of honor at a testimonial luncheon on October 1st, in observance of his thirty-six years of service with the company and its predecessor, United Lead Company.

Arthur J. McEachern, formerly Assistant Purchasing Agent of the Boston Edison Company, has been appointed Industrial Relations Manager of that company.

C. M. Turner, City Purchasing Agent at Houston, Texas, has been appointed coordinator for the city's scrap metals drive.

Harry L. Schofield, City Purchasing Agent at Cranston, R. I., is the subject of comment in a recent issue of the Cranston *Herald*, which describes him as "undoubtedly the brainiest full-time officer in City Hall, and probably the officer best versed in civic lore. He has filled a delicate assignment as Purchasing Agent for many years without a breath of scandal or criticism. He also fills the delicate assignment of clerk to the various Council committees, wherein from time to time he has been so outspoken of Councilmanic shortcomings that he is not especially popular with the boys—a fact which should recommend him to the public."

Henry F. Woulfe, formerly Purchasing Agent of the Pepsodent Company, and for the past four years serving as production manager, has moved up again, this time to the post of general manager.

Edward Warner, Purchasing Agent of the Doehler Die Casting Co., Toledo, Ohio, is president of the Ohio Speakers' Club, which opened its fall meeting schedule last month with Prof. H. Dana Hopkins of Heidelberg College as director.

R. W. Mackensen, Purchasing Agent of the Pittsburgh Coal Co., is the author of an article in the September issue of *Coal Age*, outlining the salvage program of that company. Mr. Mackensen is chairman of the Salvage Committee.

Raymond L. Dharte has been appointed Purchasing Agent for the Detroit-Michigan Stove Company, Detroit.

Castle H. Murphy has been appointed Purchasing Agent and Business Manager of the Utah State School for the Deaf and Blind at Ogden.

R. W. Thorburn, Purchasing Agent and Priorities Manager for the Memphis (Tenn.) plant of the Firestone Tire & Rubber Co., has been transferred to the company's Akron office as assistant sales promotion manager. C. A. Krouse has been appointed Purchasing Agent at Memphis, and T. C. Sewell will handle priorities.

Thomas Barham of the Borden Company, San Francisco, presented the viewpoint of the Purchasing Agent on industry problems at a recent forum meeting of the California Dairy Industries Association, at San Jose.

Frank V. Hart has been appointed Purchasing Agent for the G & N Mfg. Co., Cleveland. He was formerly associated with the purchasing department of the Bailey Meter Co.

P. B. Zoeller has resigned as Purchasing Agent of the A. M. Byers Co., Pittsburgh, to become Director of Purchases for the Elliott Co., Jeannette, Pa. Mr. Zoeller is President of the Pittsburgh Association.



HOW MUCH CAN YOU IMPROVE ACCURACY OF .000004"? (4 millionths of an inch)

Every gage block in the box pictured above is accurate to .000004" or less.

But that's not good enough!

On so seemingly hopeless a task as improving accuracy of .000004" WEBBER technicians are constantly at work. Their goal is not to meet existing standards of accuracy but to set new ones.

Not long ago "hairline" denoted extreme

accuracy—today it's thousandths and ten thousandths of an inch—and tomorrow, thanks to the efforts of such men as are found at WEBBER Gage Co., it will be far less.

WEBBER'S goal of constant improvement is your guarantee that the WEBBER Gage Blocks you buy are the best obtainable—that you can safely rely on them as the foundation for all your precision measuring.

Webber
GAGE COMPANY
12901 TRISKETT RD., CLEVELAND, OHIO



To meet war time demands the entire capacity of the new WEBBER "Home of Precision" is being devoted to manufacture of GRADE A Gage Blocks.

Prompt Delivery to firms furnishing necessary priority certificates. Prices for Set No. 81A (pictured above) \$350.00. Set No. 40A, \$185.00.

W. C. Atherton, Purchasing Agent of the Pere Marquette Railway, retired from active service on October 1st. He has a record of a half century of railroading, forty years of which were with the Pere Marquette.

Major Donald S. Bradford. Purchasing Agent of the Boston Store, Chicago, has been appointed Contracting and Purchasing Officer for the Chicago Ordnance District.

R. L. Gallenstein has been appointed Purchasing Agent for Williams & Co., Inc., Columbus, Ohio, succeeding Ralph Duff.

J. D. McMakin, formerly Assistant Purchasing Agent for the Western-Austin Co., Aurora, Ill., has been named Purchasing Agent to succeed Jack Owen, who resigned after twenty-one years in that position to join the executive staff of Thermoid Rubber Co., Trenton, N. J.

F. H. Bellows has resigned as Purchasing Agent for the Ohio Brass Co., Barberton, Ohio, to become Purchasing Agent for Air Gliders, Inc., a newly organized company in the same city. D. W. Alexander, formerly assistant to Mr. Bellows, is in charge of purchases at Ohio Brass.

Charles R. Miller, Jr., head of the purchasing department of the United States Steel Corporation of Delaware, with headquarters in Pittsburgh, has been appointed Vice President of that organization, in charge of purchases.

N. L. Satchell has been appointed Purchasing Agent of the New York, Susquehanna and Western Railroad, with headquarters at Paterson, N. J. Mr. Satchell has been in railroad work for forty years, and was general storekeeper of the road prior to his recent advancement.

G. L. Ouellette has been appointed General Purchasing Agent of the L. A. Young Spring & Wire Corp., Detroit.

Fred Schueler, Jr., has resigned as Purchasing Agent of the Jaeger Machine Company, Columbus, Ohio, after twenty-five years of service with the company.

W. H. Post has been appointed Assistant Purchasing Agent of the Northern Pacific Railway, at St. Paul. He has been associated with the purchasing department for the past twenty-two years, since 1932 as chief clerk to the Purchasing Agent. H. J. Harms has been appointed Assistant to the Purchasing Agent.

Robert Alcorn has been appointed Purchasing Agent of the Universal Cooler Corporation, Marion, Ohio.

Grant Goodale, Assistant Purchasing Agent for the State of California, at the Los Angeles office, has been awarded the honorary degree of Master of Business Administration by Woodbury College of Los Angeles, in recognition of outstanding public service. Mr. Goodale is a graduate of Woodbury, class of 1906, and has served with the U. S. Forest Service and the Los Angeles Harbor Department, where he was Purchasing Agent prior to joining the State purchasing organization. He is Past-President of the Los Angeles Association, and is currently Vice President of the California State, County and Municipal Purchasing Agents Association.

Leslie E. Welch has been appointed Purchasing Agent of Purolator Products, Inc., New York, succeeding the late John H. Schafer. Mr. Welch has been Assistant Purchasing Agent of the company for the past fifteen years.

Capt. John J. Marantic, formerly Purchasing Agent of The Binks Mfg. Co., Chicago, and Purchasing Engineer with the DeVilbiss Co., Toledo, has been made Commanding Officer of the Air Corps Depot Training Unit at the New Orleans Army Air Base. Capt. Marantic is an Army veteran with extensive service in the Philippines and the Far East.

Howard Livezey has resigned as Purchasing Agent for the Railway & Industrial Engineering Co., Pittsburgh, to take charge of Central Raw Material Stores for the three plants of the Sperry Gyroscope Company. Leo E. Dobies is the new Purchasing Agent at R. & I. E. Co.



for high efficiency
in the production of:

ARMSTRONG TOOL HOLDERS
ARMSTRONG Turret Lathe and Screw
Machine Tools
ARMSTRONG LATHE DOGS
ARMSTRONG Drop Forged WRENCHES
ARMSTRONG Socket Wrenches
ARMSTRONG "C" CLAMPS
ARMSTRONG HIGH SPEED STEEL
ARMSTRONG RACHET DRILLS
ARMSTRONG SETTING-UP TOOLS
ARMSTRONG Machine Shop Specialties
"ARMSTRONG BROS." PIPE TOOLS

—all vital tools of modern warfare.



When writing Armstrong Bros. Tool Co. please mention Purchasing

Frank J. Mitchell, formerly Purchasing Agent for Globe Wireless, Ltd., San Francisco, whose plant has been taken over by the Navy, has been appointed Purchasing Agent for the Hercules Powder Co., Hercules, Cal., succeeding B. R. Cheyney, who has been called into active service as a Lieutenant in the U. S. Naval Reserve, at the Navy Munitions Depot, Mare Island.

Lewis G. Baker has been appointed Purchasing Agent for the University of California, Berkeley, succeeding the late J. W. Barnett.

S. R. Curtis, Purchasing Agent of the Stromberg-Carlson Co., Rochester, N. Y., has been named Operating Superintendent of that plant.

L. L. Layton has been appointed Purchasing Agent for the J. M. Martinac Shipbuilding Co., Tacoma, Washington. He was formerly associated with the purchasing department of the Siems Drake Puget Sound Company.

A. V. Leclerc, for the past thirteen years Purchasing Agent for the Carlisle Lumber Co., at Onalaska, Wash., has joined the staff of the Willamette Iron & Steel Works, Portland, Oregon.

Marston Abercrombie has been named Purchasing Consultant at the Jersey City (N. J.) Quartermaster Depot of the U. S. Army. Mr. Abercrombie was formerly vice president and general manager of the Loft Candy Company.

Henri Logcher, Purchasing Agent at the New York offices of N. V. Rathkamp & Co., Dutch pharmaceutical house, has been commissioned a First Lieutenant in the Sanitary Corps of the Medical Department, U. S. Army, one of the first Netherlanders to be so honored.

L. Bayne Stanton has been appointed Purchasing Agent of the Curtiss Wright Corp., Buffalo, N. Y., succeeding Frank Maley, who has been advanced to new executive responsibilities in the organization.

N. M. Gressle has been appointed Purchasing Agent of the Telling Belle Vernon Co., Cleveland, succeeding C. L. Lesser, who is now special assistant to the president.

Paul B. Williams, Purchasing Agent of the Pekin Wood Products Co., West Helena, Ark., a Chrysler subsidiary, has been transferred to the Detroit headquarters of the Chrysler Corporation.

Herman Bruner has been appointed Purchasing Agent at the New York office of Argentine Government Oil-fields, succeeding Carlos T. Campodonico, who will head the purchasing department of the organization at Buenos Aires.

TIRE CONSERVATION SERVICE

A Tire Conservation Department to help conserve rubber and render tire consultant service to truck fleet operators has been formed by The B. F. Goodrich Company and John T. Staker made manager, it is announced by James J. Newman, vice-president.

Contracts are negotiated with truck fleet operators and a service fee is based on the number of vehicle miles run, Mr. Newman said.

Functions of the department are:

To conserve rubber as one of the contributions to the war effort.

To make possible lower operating costs on tire equipment used by fleet accounts of the company.

To insure as nearly as possible continuous operation of fleet equipment despite the rubber shortage or because of service interruptions due to tire causes.

James E. Carhart, for many years a tire engineer in the truck and bus tire field has been named assistant to Mr. Staker.

1 1 1

NEW BOOK ON PLASTICS

A new book, "Plastics", by J. H. DuBois, has just been published by the American Technical Society, Chicago. Mr. DuBois is a sales engineer in the General Electric Plastics Department, employed at the Fort Wayne, Ind., factory.

(Continued on page 140)

MILFORD FLEXIBLE REZISTOR

Hard Tooth . . . Annealed Back
High-Speed Steel Hacksaw Blade



The men on the machines know that the MILFORD FLEXIBLE REZISTOR stands up under the drive of today's production needs. And it does! It not only cuts fast, but is shatterproof and unbreakable in service.

Hand sizes have easy-starting teeth.

THE HENRY G. THOMPSON & SON CO.
NEW HAVEN, CONN., U.S.A.
• • Makers of Milford Profile Saw • •

When writing The Henry G. Thompson & Son Co. please mention Purchasing

PAGE FENCE

America's First Wire Fence - Since 1883



PROTECTOR OF PRODUCTION FOR AMERICA'S VICTORY DRIVE

● To keep 'em flying and rolling toward victory requires uninterrupted production, and continuous production requires protection against unauthorized entry to plant properties. ● Page Industrial Fence is the highest development in woven wire fence, originated in 1883 by J. Wallace Page and made for 59 years by the company he founded. This modern protective barrier is distributed by modern methods. Construction engineering and erecting are performed by local, responsible firms which are factory trained and long experienced—the 102 members of PAGE FENCE ASSOCIATION, Headquarters: Monessen, Penn.

See ACCO advertisement in this issue, page 90

PRODUCT OF PAGE STEEL & WIRE DIVISION—AMERICAN CHAIN & CABLE COMPANY, INC., BRIDGEPORT, CONN.



Welded Stainless Tubing

4" to 14 $\frac{3}{4}$ " O.D.

Uniformity in roundness and in quality of welding characterizes Pittsburgh Piping Welded Stainless Tubing. Available in most stainless alloys, in sizes 4" O.D. to 14 $\frac{3}{4}$ " O.D., and in wall thicknesses ranging from $\frac{7}{16}$ " to $\frac{1}{2}$ ". Write for data sheet.

PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST.
PITTSBURGH, PA.

(Continued from page 139)

The author in the course of his work as a sales engineer over the past fourteen years has found a need among the users of plastics molded or laminated products for a concise summary of the types, properties, and uses of plastics products. The purpose of his book is to provide in one convenient place a broad but detailed summary of the entire plastics industry, containing enough information to enable the user of plastics to choose intelligently the material which will fill his needs.

The book begins with a general introduction to plastics, defining fundamentals and terminology. The author then takes up the various types of materials separately, indicating their sources, manufacture, variations, properties, and applications. These materials include phenolics, ureas, cellulose, acrylic vinyl and styrene, cast phenolic and protein plastics, mycalex, nylon, lignin, resin-bonded plywood, and synthetic rubber-like materials.

Subsequent chapters deal with the methods of manufacture of plastics products including molding, finishing and decorating. The final chapter on the design of plastics molded products describes the practices resulting in most satisfactory moldings at minimum cost.

"Plastics" is profusely illustrated and well indexed. Copies of the book are available from the American Technical Society, 850 East 58th St., Chicago, Ill., at \$3.00 per copy.

CARBON DIOXIDE TESTED ON FIRE-BOMBS

In an effort to remove the confusion regarding the effectiveness of carbon dioxide as an extinguishing agent for magnesium incendiary bombs, engineers of Walter Kidde & Company have announced results of comparative tests as to the efficiency of this inert gas on fire-bombs.

These tests, conducted in an enclosed space show that total flooding with carbon dioxide not only reduces the burning time of the magnesium by one-third, but also tends to isolate the fire and prevent adjacent combustibles from igniting. By comparison, a water spray properly applied speeds up the burning of the bomb to one-tenth of its normal burning time.

Daniel Mapes, Vice President in charge of Engineering of the Kidde firm, interprets the tests as indicating that industrial plants protected with total-flooding carbon dioxide systems are already guarded against incendiary bomb fires. In cases where water would damage large quantities of materials, according to Mr. Mapes, the use of total flooding carbon dioxide systems is recommended. It is emphasized that carbon dioxide portable extinguishers are not suited for fighting magnesium bombs, since a portable extinguisher does not treat the surrounding materials to a sufficient degree.

Judson H. Pohlson, formerly with the National Enameling and Stamping Company at Los Angeles, has been appointed Purchasing Agent for the Bendix Aircraft Corp.

Proper Treatment OF YOUR MECHANICAL RUBBER EQUIPMENT CAN INCREASE ITS SERVICE LIFE AS MUCH AS 50% . . . INCREASE THE WAR STRENGTH OF AMERICA'S RUBBER SUPPLY.

THE war strength of our nation's rubber supply is entirely a matter of how far a limited quantity can be made to go. Consequently, while the supply is limited . . . until such time as it can be adequately supplemented by other types of raw materials . . . it is both a patriotic duty and a business expedient that industry do everything possible to make its mechanical rubber equipment last. Every extra hour that your belting, hose or other industrial rubber products operate releases rubber to other war purposes.

In line with the vital need for care in the use of mechanical rubber goods, Republic has pooled its specialized knowledge to prepare a practical digest on the prescribed methods for maximum service life. Handy six by nine inch size with speedy thumb index and comprehensive drawings, this valuable handbook is designed to facilitate your rubber conservation efforts in every possible way. Write for your copy today. REPUBLIC RUBBER DIVISION OF LEE RUBBER AND TIRE CORPORATION, YOUNGSTOWN, O.



Your Republic Distributor is qualified and willing to assist you in assuring that your mechanical rubber equipment is installed and operating properly. Why not coordinate his service with your use of the Republic Handbook?



THROW YOUR SCRAP INTO THE FIGHT

REPUBLIC RUBBER

HOSE • BELTING • MOLDED GOODS • PACKING • EXTRUDED PRODUCTS

FOLLOWING THRU ON SPRINGHILL TAG



In the high pressure production of war materials, inspection cards and production charts must be printed on durable materials that can "take it." Springhill products are ideally suited for these purposes — maximum value at minimum cost.

SPRINGHILL

TAG • INDEX • BRISTOL

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THOUGHTFUL PLANNING IS A SERVICE TO THE NATION

When writing International Paper Co. please mention Purchasing

Business MACHINES and Stationery STORES



INTER-COMMUNICATION FACILITIES ARE UNDERLOADED

Intelligent and planned utilization of existing equipment
may relieve the bottleneck of inter-office communications

By E. L. CADY

NEARLY all kinds of office inter-communication equipments are still to be had if really needed and if the proper priorities or allocations are on tap. There are a few items, such as the "stored up message" kinds of teletypes, which because of their military value are hard for anybody but military services to get, but teletypes and teletype services fully adequate for any business need are available. Military authorities have recognized that if production is to go on, inter-communications equipment must be obtainable, and the necessary new materials and repair parts are coming off from the production lines.

There is no surplus. In planning for new inter-communications systems, the absolute minimum which can get the work done is the absolute maximum of equipment which should be installed. The military need for the kinds of parts which go into inter-communications devices, and for parts which might be produced by the machines which make such devices, is too obvious to require comment.

Most calculations for extending inter-communication facilities as office and plant forces are increased, are based upon the work accomplished by old facilities which have never been loaded to half of their capacities. More work can be accomplished by offices and factories alike if present inter-communications facilities are re-planned or relocated so as to be used to full capacities. More new facilities can be available to everybody if present installations are loaded to the limit first and new ones planned on the

basis of peak use. And the time of repair crews can be saved and the wastage of maintenance parts prevented if common sense practices are followed in the operation and treatment of such equipment.

FACTORS WHICH DETERMINE TYPES NEEDED

The types of facilities needed, depend generally upon the percentage of allowable "stored communications", the "holding time" on telephone or on inter-office wired radio or other immediate message equipment, the number of calls which are incoming or are not instigated at the desk in question, and the percentage of outgoing messages or calls on which the desk in question takes the initiative.

STORED COMMUNICATIONS

Stored communications are any which can be "stored up" for delivery at the convenience of the receiver or of the sender. Most of them must be written, although some can be recorded upon dictating machine records or entrusted to the memories of secretaries.

Some of the best opportunities for faster overall use of inter-communication facilities, lie in the wider use of stored messages.

One war industry having widely scattered plants, never can be sure which plant its various executives and engineers will be visiting at any given time, for

these men take the swiftest possible transportation from plant to plant and leave each factory the instant their immediate business is finished there. Instead of the old method of telephoning around when any man is to be reached, the teletype is used. An important message for any travelling executive is teletyped to all of the plants, and he picks it up wherever he happens to be. If the message is unduly long, or if it concerns blue prints or other papers, additional information is forwarded to him by air mail addressed to the plant at which he will need the data, and the teletype messages inform him that this has been done.

USING PRESENT EQUIPMENT

In a large plant having pneumatic tube systems, the use of the horn signal inter-plant phone has been cut to the emergency minimum by the use of stored messages. Any matter which cannot wait until an executive gets back to his desk, is "shot" by pneumatic tube to several departments in the plant, multiple copies often being made so it can be despatched to several departments at once. Sometimes a department will shoot the message back to the central files despatch station of the tubes system, with the notation, "just left here for department 29" or some similar information on it. In any case, the executive gets the stored messages whenever he passes a tube station which has them, and he can make pencil notations on them and shoot them back or take such other action as is needed.

(Continued on page 144)

If You Really Keep Records



Keep Them on a Weston Paper

Those important records that you plan to keep and *use* for five, ten, fifteen years — or even *forever* — need the protection of paper made of cotton fibres. The very life of the records depends on it.

Representing only a trifle of the cost of the finished records, accounts or correspondence, cotton fibre content paper of Weston quality pays for itself again and again in

long run economy, security and superior working qualities.

The makers of Weston papers have concentrated all of their skill, experience and technological resources on the making of papers worthy of the responsibility of carrying records and messages of genuine importance. Your printer or paper supplier will gladly help you select the right Weston papers for your needs.

Is Paper Your Responsibility? Then let us put you on the mailing list for *Weston's Papers*, a special publication of news, ideas and information about high grade paper. Write Department H

BYRON WESTON COMPANY, Dalton, Massachusetts

IF IT'S WORTH KEEPING, KEEP IT ON A

WESTON *paper*

LEDGERS

BYRON WESTON CO. LINEN RECORD
(Extra No. 1, 100% New White Cotton and Linen Clippings)
DEFIANCE LEDGER (100% Cotton Fibre Content)
WAVERLY LEDGER (75%) CENTENNIAL LEDGER (75%)
WINCHESTER LEDGER (50%) BLACKSTONE LEDGER (25%)

INDEXES

DEFIANCE INDEX (100%) WINCHESTER INDEX (50%)
WESTON'S MACHINE POSTING INDEX (50%)

MACHINE ACCOUNTING
TYPACOUNT LEDGER (75%)
WESTON'S MACHINE POSTING LEDGER (50%)

BONDS

WESTON'S BOND (Extra No. 1, 100%)
DEFIANCE BOND (100%)
HOLMESTAD BOND (75%)
WINCHESTER BOND (50%)
BLACKSTONE BOND (25%)

(Continued from page 143)

The maintenance manager of a multi-story plant uses the dictating machine system of stored messages. When his crew men call his office for instructions in his absence, if the matters are at all difficult to handle, the assistants hold the dictating machine mouthpiece alternately at the telephone receiver and mouthpiece so that the entire phone conversation between crew man and assistant manager is recorded. The assistant manager gives the crew man such instructions or information as he can. But when the manager gets back to his office, or as soon as he can be reached on the telephone, he listens to these recordings and makes such changes or amplifications in instructions as may be needed. By this system the assistant is stretched to the full limit of his ability to assume responsibility, the crew man gets the speediest help available, and the manager judges what has been going on, not only by knowing what has been said, but also by hearing the inflections of voice in which it was said; inflections which tell him whether his crew man is badly bothered or merely puzzled.

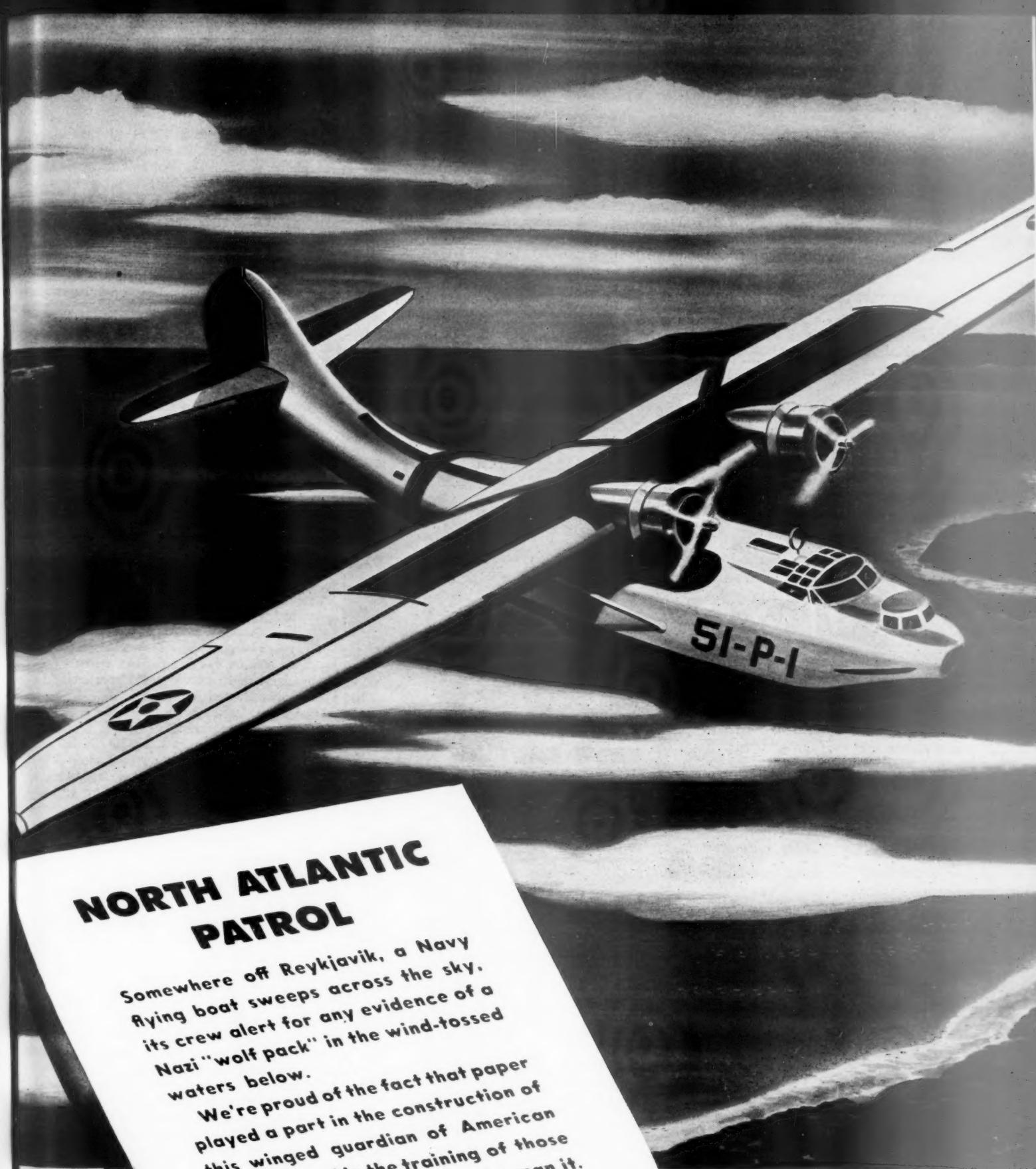
REGULAR SCHEDULES ARE HELPFUL

A warehouse manager uses the wired radio with stand-by signal, the master station being at the desk of his secretary. All day his department managers and foremen call in to the secretary, who records their questions and reports in shorthand. Emergency matters are routed direct to the manager. All others are brought to him at 10:00 a.m., 1:00 p.m. and 4:00 p.m. The secretary records his remarks, instructions or questions in shorthand, then goes to the master station and turns on the "stand-by" lights at the boxes in the departments which are to be contacted. Since the master key is at her desk, the circuit can be completed and the light thereby extinguished only at her will . . . the light will continue to glow at each station until she has made her contact and delivered her message.

Five minutes elapse after she turns on the lights before she makes her first call — the supervisors have plenty of time to put down whatever they are doing and get to the desks where the boxes are stationed. The results of this system are stored calls from foremen to manager and manager to foremen, regular schedules for all interruptions but emergency ones, quick handling of emergencies and an average of from two hours to twenty-four hours saving in time per message and reply as compared to the old "plant mail" system.

Inter-communication telephone messages are stored up in one of the New York offices of a large government agency. Each engineer here is given a definite hour — 2:00 p.m., for example — when he must make all of his inter-office phone calls except emergency ones. At that hour he is not interrupted by sending in callers, incoming phone calls are not given him, mail is not brought to his

(Continued on page 146)



NORTH ATLANTIC PATROL

Somewhere off Reykjavik, a Navy flying boat sweeps across the sky, its crew alert for any evidence of a Nazi "wolf pack" in the wind-tossed waters below.

We're proud of the fact that paper played a part in the construction of this winged guardian of American shipping, and in the training of those who man it.

THE HOWARD WRITING PAPER MILLS

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HOWARD BOND • HOWARD LEDGER

THE AETNA PAPER MILL • CINCINNATI, Ohio

CORRECT BOND • MAXOPAQUE

THE MAXWELL PAPER MILLS • Franklin, Ohio

MAXWELL BOND • MAXWELL OFFSET

DAYTON ENVELOPE CO. • • • Dayton, Ohio

ALL GRADES, ALL STYLES, ALL SIZES

(Continued from page 144)
desk, nor any but emergency interruptions allowed to distract him. At a given time—2:30 p.m. or 3:00 p.m. for example—he must be through with his routine calling. Thus the switchboard is clear for him during his own hours, the operator gives him preferred service, but he clears it for the next man too.

CUTTING DOWN THE HOLDING TIME

Holding time—the elapsed time during which a telephone or other circuit is held

open by a message, or the sum of the actual talking plus the "hold the wire" time—is the dominant determining factor in selecting immediate message equipment such as telephone systems.

The interior traffic manager of an electrical equipment plant—his job is to get materials handling lift trucks where they are needed—is an example. Foremen complained that they could not reach him over the plant telephone system to get trucks or to find out when trucks would be available. Clearly, he needed more

phones, or more switches so that more traffic could be handled over the same phone, on his desk. But how many more?

He already had direct wires to five plant stations to which trucks reported.

WHAT TIME STUDIES SHOWED

Time study analysis showed that 2 seconds must be allowed for his motions in picking up a phone after observing the signal, and putting the phone down at the end of the call, and since he had to do this for his own call to a station as well as for the incoming call, a total of 4 seconds would be used. He was a 200 word per minute speaker, each call would need some 20 words spoken to the foreman, or 6 seconds. The foremen were mostly 60 word per minute speakers and needed 15 words per message, or 15 seconds. Total time, then 2 plus 2 plus 6 plus 15, or 25 seconds per message.

This 25 seconds would be split into several parts; the first part consisting of picking up the phone and listening to the foreman, the second of picking up the direct wire phone and talking to the despatching station, the third of attending to other calls while the station got the necessary data, and the fourth of instructing the foreman.

There usually was a wait of two minutes before the plant despatching station could report back on what truck was available and when it would be where the foreman wanted it.

On an ideal basis therefore, the interior traffic manager could use four incoming wires, the two minute holding time at each traffic station adding up to four 25-second periods plus 20 seconds leeway. Actually, six incoming wires were found more practical since the incoming calls did not space themselves evenly.

The holding time for a foreman to get a truck scheduled, then, was from two and one-half to three minutes. This compared with such long waits and general chaos before the problem was studied and the additional lines installed, that the management had been on the point of decreeing that any foreman who needed a truck must give two hours advance notice.

PEAK HOUR CALLS

High pressure operation like this was needed only during the peak traffic hours. During most of each shift, foreman could communicate directly with the truck despatching stations. Peak hour calls had to come to the traffic manager because idle trucks had to be ordered from the temporarily underloaded to the seriously overloaded stations. The traffic manager could handle about 110 calls in a peak hour. But additional plans were made, by which when he had a seriously underloaded station, he could flash his phone operator and tell her to route the next ten truck calls direct to that station, unless they came from points too remote from that station to be practical. By this means he could reorganize his forces at the busier stations and get his calls per peak hour up above the 125 mark.

A service manager had one of the situations in which a second telephone



Carbon paper that curls is a costly and unnecessary nuisance. It wastes precious time and energy at every loading of the typewriter, tries the temper of your typists, causes mistakes. Check up on your carbon paper now. Send for your free DAWN samples. See why . . .

It pays to give your typists **DAWN**
OLD TOWN'S amazing new *CurlPROOF CARBON*

DAWN gets the job into the machine quicker . . . turns it out neater. Saves time. Saves temper. Saves mistakes. DAWN STAYS FLAT, never curls, is easy and clean to handle. Try this *speedy* carbon. For test samples write OLD TOWN RIBBON & CARBON CO., Inc., foremost makers of ribbons and carbons for every use. Address Dept. A. 6.

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on a desk is of value. In many of his incoming calls he had to hold technical discussions with his men and with customers, and the holding time per call was at least five minutes. But he always could say "hold the wire, please" for an important interruption. A second phone on his desk permitted him to handle short interrupting inter-communications like those; by having a second phone he could always be available, the long incoming calls did not mean that he always was "busy" when wanted.

If a high percentage of his calls had been initiated by himself, or been "out-going" calls, this service manager would not have needed the second phone, since he could have phoned only at hours when interruptions were few, and could have otherwise cut down his holding time. Excepting in the cases of brokerage offices traffic desks, and the like, the use of forests of telephones on any one desk seldom results in anything but confusion.

PLAN YOUR CALLS

Holding time can be cut down by pruning excess verbiage. In the case of the interior traffic manager, seconds were cut from the average peak hour call by discouraging such introductions as "Hi! Yah! You red headed son . . . ! When can I have one of your (supply the adjectives yourself) trucks?" This sort of thing, with its inevitable reply in kind, could be shortened to "Department one-two-one needs a fork truck at machine seven-eight-four in ten minutes." During off-peak hours, inhibitions might be relaxed.

"Prepare before you call", is a rule which will eliminate hours of holding time per day. Thousands of executives have formed the habit of making interior or inter-communications calls as a way of relaxing for a moment when tired of staring at pages of complicated figures, etc.; the calls are essential but are made without the necessary papers being at hand or the thoughts well organized for discussion.

"The inter-communications system is a necessity, not a convenience," is an idea which, if put across to executives and others, will eradicate bad habits which have been carried over from the depression into the war.

In many cases it is advisable to have switchboard operators, if the system uses them, put on surprise sessions of recording who calls whom on the inter-communication, and how long each talk is. These sessions should be unknown to the big boss until he sees the tabulations of results, for quite commonly he is the worst offender.

KEEP THE MAINTENANCE DOWN

Office employees seldom perform maintenance operations on inter-communications equipment. But there is plenty which can be done to keep maintenance parts, replacements, and man time down so there will be plenty to go around during the war period. A few suggestions:

Unless specifically instructed to do so by makers or installers of the equipment, do not put any lubricant on it and do not

spill lubricant near it.

Don't squirt an oil can toward a telephone when oiling a typewriter or other device. Don't stand an oil can on a switch or bell box.

Don't let an operator eat her lunch on the switchboard; she may tie up the whole system for hours. Likewise, don't let her keep vases of flowers, glasses of drinking water nor bottles of nail polish nor any other liquids on the board.

Don't paint electrical communications equipment; the paint contains rubber and insulation solvents which might flow onto the wires. Don't paint the wires. If painting a wall with the wires running along the base board, protect the wires, or better still, have the service company

or someone who knows how remove them first.

Don't move desks, etc., if in doing so the wires may be tightened, slackened or kinked. Call the service company first—one of its jobs is to make sure that wires are neither so tight as to stretch nor so loose as to afford accident-tempting loops. Don't tinker or meddle with the equipment.

1 1 1

NEW ARMY BUILDING

Some time about mid November, the War Department will have a new Army of Virginia. It will move across the (Continued on page 148)



DIAGRAPH-BRADLEY STENCIL CUTTING MACHINES

Features: Exclusive punch guide assures perfect alignment; Removable interchangeable letters; Easy-to-read dial; Ball-bearing construction; Visible feed; Fewer working parts; Smooth-baked finish; Cuts stencils any length.

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Letter sizes: $\frac{1}{2}$ "— $\frac{3}{4}$ "— $\frac{7}{8}$ "— $1\frac{1}{4}$ "— $1\frac{1}{2}$ "— $1\frac{3}{4}$ ". We are only manufacturer making stencil machines for letters larger than one inch.

Complete Shipping Room Supplies

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Distributors in principal cities. See phone book or write Diagraph-Bradley Stencil Machine Corporation, 3750 Forest Park Boulevard, St. Louis, Mo.

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BOOST YOUR OFFICE PRODUCTION WITH PARSONS MECHANO FORM LEDGER

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Guard against breakdowns in your management machinery by using PARSONS MECHANO FORM color control for each department. It insures orders and important instructions going through without a hitch—50% cotton fibers enable Mechano Form Ledger to stand the gaff of thumbing, erasing and rough handling. Eighty years of knowing how produces these better papers at no extra cost. They're available through all leading Printers and Lithographers. Sample sheets sent upon request.

Write for the Mechano Form Ledger and Index reference book. It is available through all leading Printers and Lithographers or direct from the mill.

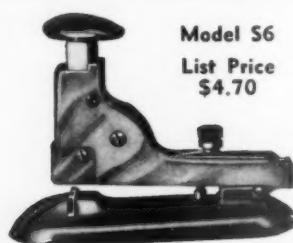
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The best way to fasten papers. Needed on every desk. Use economical standard size staples. Built to last. Guaranteed against defects.

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Model S6
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Many other models to choose from.
Circulars and prices on request.

Dept. P

(Continued from page 147)

Potomac River into the world's largest office building—a building covering large acreage and having a perimeter of approximately one mile.

The building, of pentagonal shape with specially designed communicating corridors to handle the 35,000 employees or over, is also completely air conditioned, keeping man power efficiency at its peak in the humid weather on the banks of the Potomac.

To get some idea of the size of this Gargantuan air conditioned building, just start with the Yale Bowl or some comparable six acre stadium. That is about equal in size to the court yard of the Army's new home made necessary by the size of America's new Army. The Empire State Building in New York is taller than this mammoth beside the Potomac. The Merchandise Mart in Chicago may look larger. These and others may cost more because of site and trim. But the new Pentagon Building in Arlington tops them all in floor space, although it is only five stories high. The Army figures it will save the taxpayers \$4,000,000 a year now being paid on 17 or more building scattered over Washington, with a resultant lack of coordination.

The building is five-sided so that it can be approached from five directions—and each approach will give a full-faced view of the building. Actually it is five buildings in one—four nested within one outer building in an ingenious, space saving design that gives maximum of light and convenience. On the first and second floors the space is continuous, with the exception of the interior road.

Twelve centrifugal refrigeration machines, built to the scale of America's war effort, provide a cooling capacity of 13,200 tons. This is equivalent to the melting of 26,400,000 pounds of ice daily. There will be 7,800 Weathermaster window units installed throughout the building to provide a total of 3,900,000 cubic feet of conditioned air per minute.

Water from the Potomac River will circulate at the rate of 46,600 gallons per minute to remove the heat from the refrigerant in the giant centrifugal machines. This water is used and then turned back to the river.

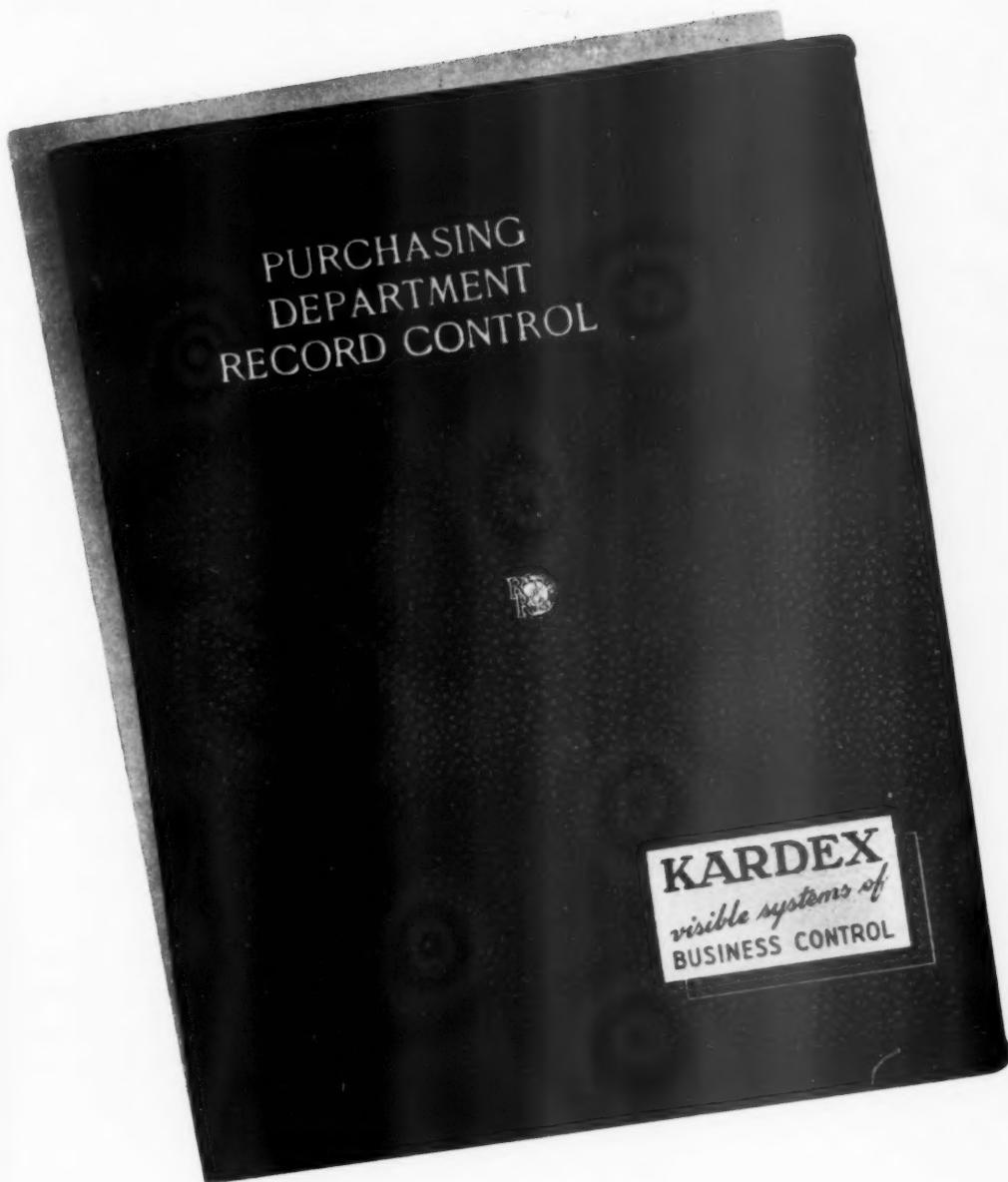
As for a few other facts about this building begun last September and to be completed in November:

It will have six cafeterias—probably the world's largest—capable of serving 50,000 to 100,000 meals per day.

It will have its own bus terminal within the building, capable of loading 28 buses at a time during rush hours and with a ventilating system that speeds up automatically if carbon monoxide fumes become heavy.

The system of roadways, underpasses, and cloverleafs necessary to get the traffic in and out necessitates the building of 21 bridges.

If you took all five of the wings and stretched them in a straight line, you would have a four-story building fifty feet wide and approximately three miles long.



YOU MAY EXAMINE THIS MANUAL FREE OF CHARGE

THESE SUBJECTS MINUTELY ANALYZED

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PROCEDURES
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This book is for Purchasing Department executives who are seeking more effective control methods for wartime procurement. You will find it clear cut in its description of a definite, workable plan for effective purchasing...timely in its approach to your department's most perplexing problems.

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STAPLING MACHINE

Ace Stapling Equipment speeds up work in offices, factories, drafting rooms, shipping departments and many other places where time and efficiency are vital. That accounts for the ever-increasing use of the Ace Method of fastening valuable papers and documents by the U. S. Government and War Industry!

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ACE
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The
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FOR EVERY PURSE AND PURPOSE

**PAPER COMPANY WINS
ARMY-NAVY AWARD**



On September 15 the Hammermill Paper Company of Erie, Pennsylvania, became the nation's first paper mill to receive the Army-Navy "E" Award for Excellence in the production of materials vital to this war.

Lowell Thomas, widely-known radio commentator, served as master of ceremonies at the presentation which was witnessed by 1700 Hammermill men and women, Army and Navy officials and guests.

The combined Army-Navy citation was read by Lieut. Colonel Charles Cavelli, Jr., QMC, Jersey City Quartermaster Depot, Jersey City, N. J., who said "The Hammermill Paper Company has supplied paper consistently above specifications. No rejections have been made. Superior deliveries have been made without the aid of priorities." The "E" flag was accepted, on behalf of the employees and management, by President Norman W. Wilson.

1 1 1

**OFFICES CAN CONTRIBUTE
TO SALVAGE DRIVE**

Tons of scrap rubber and metal, in obsolete or unused office equipment, represent an untapped reservoir for the nation's salvage drive, according to Ralph B. McKinney, in charge of the Hercules Powder Company salvage campaign.

"Factories and homes are being urged to turn in scrap but no one seems to pay much attention to the metal and rubber in thousands of American business offices," he pointed out.

A survey concluded today within the chemical company's main offices at Wilmington, Del., has turned up between 1½ and 2 tons of valuable scrap metals for the Delaware salvage pile. Among the larger individual articles that will be donated by Hercules are: four filing cases, weighing 500 lbs.; four steel transfer cases, 100 lbs.; one card holder, 75 lbs.; one cabinet, 250 lbs.; shelves, 300 lbs.; an all-steel cabinet, 500 lbs.; and an AC-DC converter, 750 lbs.

At the same time, the Men's Club of Hercules Powder Company has instituted a volunteer salvage campaign to collect scrap metal or rubber from all offices of the company in Wilmington. Walter S. Grinsell, Jr. has been named head of the Club's salvage committee.

Mr. McKinney declared that, "Many
(Continued on page 152)

**NEW GIRLS
TO TRAIN?**



Here's a tip —

If experienced secretaries, stenographers, and typists benefit from using Micro-metric Carbon Paper, think what a help this invention can be in training new girls! A numbered scale, actually a part of each sheet of carbon paper, acts as a vertical guide. The result: Fewer letters and reports to retype for proper spacing. A Webster representative will be glad to demonstrate for you.

Ask him also how to get more wear from your carbon paper and typewriter ribbons... how to select the right carbon papers and typewriter ribbons to get the maximum wear at the minimum cost. He is an expert in his field, thoroughly qualified to help you.

FOR SERVICE AND SAMPLES WRITE:

WEBSTER'S
7 Amherst St., Cambridge, Mass.
**CARBON PAPERS and
TYPEWRITER RIBBONS**

Factory branches in New York, Philadelphia
Chicago, Pittsburgh, and San Francisco

PRINTING ORDER

5,000 letterheads, 8 1/2 x 11 inches

Two colors (blue and black)

20 lb. Rising Bond, verry.

Imprint 1,000 copies with branch office address

Shipping instructions

RUSH

What does it mean to you?

When that "rush" stamp goes on your printing orders, do you expect—and get—quality results? We'll bet, then, that your printer is a constant user of Rising Papers.

Here is what one printer recently wrote about Rising Bond, in reference to an outstanding letterhead he had produced. "I believe," said he, "Rising Bond is the only sheet in the 25% rag class that would achieve these results." He said further, "Rising Bond is versatile enough in its affinity for ink to take a fine light type and heavy reverse in one impression."

Take a tip from a printer, and use Rising Bond for your letterhead. Call in your Rising merchant today.



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Don't Be Penalized For "Time-Out"

Winning a war is far more important than winning a football game. Time lost—"TIME OUT", can be avoided through the use of

COLUMBIA READY-MASTER FORMS FOR SPIRIT CARBON AND DIRECT PROCESS DUPLICATORS

They save time, speed up "systems work" in office and factory. The typist takes no "time out" looking for master and carbon sheets in separate boxes, assembling or realigning sheets, or in washing hands soiled after using conventional separate master and carbon sheets. No time wasted as with cumbersome outdated systems.

Columbia Ready Masters come in complete sets—spirit carbon and master—made for each other—special paper, special ink, special Columbia quality. They are indispensable for the speedy duplication of PURCHASE ORDER FORMS, PRODUCTION ORDER FORMS, MATERIAL LISTS, REQUISITION FORMS, ENGINEERING RELEASES, etc.

Help the war effort—help your business—by investigating Columbia Ready Master now. Phone or write the Columbia branch office nearest you.



COLUMBIA

RIBBON & CARBON MANUFACTURING CO., INC.

Main Office & Factory: Glen Cove, L. I., N. Y.
58-64 West 40th Street, New York City
204 Dwight Building, Kansas City, Mo.
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155 West Congress Street, Detroit, Mich.
227 East Michigan Street, Milwaukee, Wis.
200 Plymouth Building, Minneapolis, Minn.
107 Union Street, Nashville, Tenn.
1508 Fox Building, Philadelphia, Pa.
208 Standard Life Building, Pittsburgh, Pa.
205 East 6th Street, Cincinnati, Ohio
(Harris-Moers Company)

Also: London, England; Sydney, Australia

(Continued from page 150)
business offices keep in their store rooms old desks, cabinets, lamps, floor pads, cuspids, chairs, obsolete office machines, waste baskets, desk trays, calendar pads and fans, that are no longer serviceable.

"These pieces of standard office equipment should be surveyed immediately with an eye to what can be spared for salvage. They should be considered in the same way as an old bridge lamp or a broken electric fan you have home in your attic."

Salvage campaigns are continuing satisfactorily in all Hercules plants. Last month, the WPB singled out the Hercules plant at Parlin, N. J. for its scrap contribution of 1,206,751 lbs of scrap iron and steel turned in from October 1941 through July of this year.

PRIORITIES HERE TO STAY



New York, N. Y., Sept. 26th: At a meeting in this city, Eric Albrecht, noted economist, author of the widely read "British Wartime Economy" and member of the Editorial Staff of the Research Institute of America, told the personnel and associates of the Visible Index Corp. that, in all probability, the priorities system will become a fixture in American economic life.

He explained that America has never been record-minded, as have European countries, but that efficient prosecution of the war has made it mandatory for industry to keep not blanket records, but detailed, complex, highly specialized records of each and every phase of business, every ounce of material, every man-hour spent, etc.

"The present priorities system," said Mr. Albrecht, "may not exist in its present form after the war is over. But we can expect that it will function after the duration in a more modified form. It is therefore essential that the record systems installed by industrial firms today be flexible enough to take care of tomorrow's requirements."

He reminded those attending the meeting that had the United States possessed the intricate, detailed records which were at Axis fingertips at the start of the war, we would have been able to get full production out of our factories in much less time than was actually accomplished.

1 1 1

G. A. Kennedy has resigned as Purchasing Agent for the McGoldrick Lumber Co., Spokane, Wash.



THIN PAPERS are Essential to MODERN BUSINESS

to reduce
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expenses.

Specify one of ESLEECK THIN PAPERS

Fidelity Onion Skin

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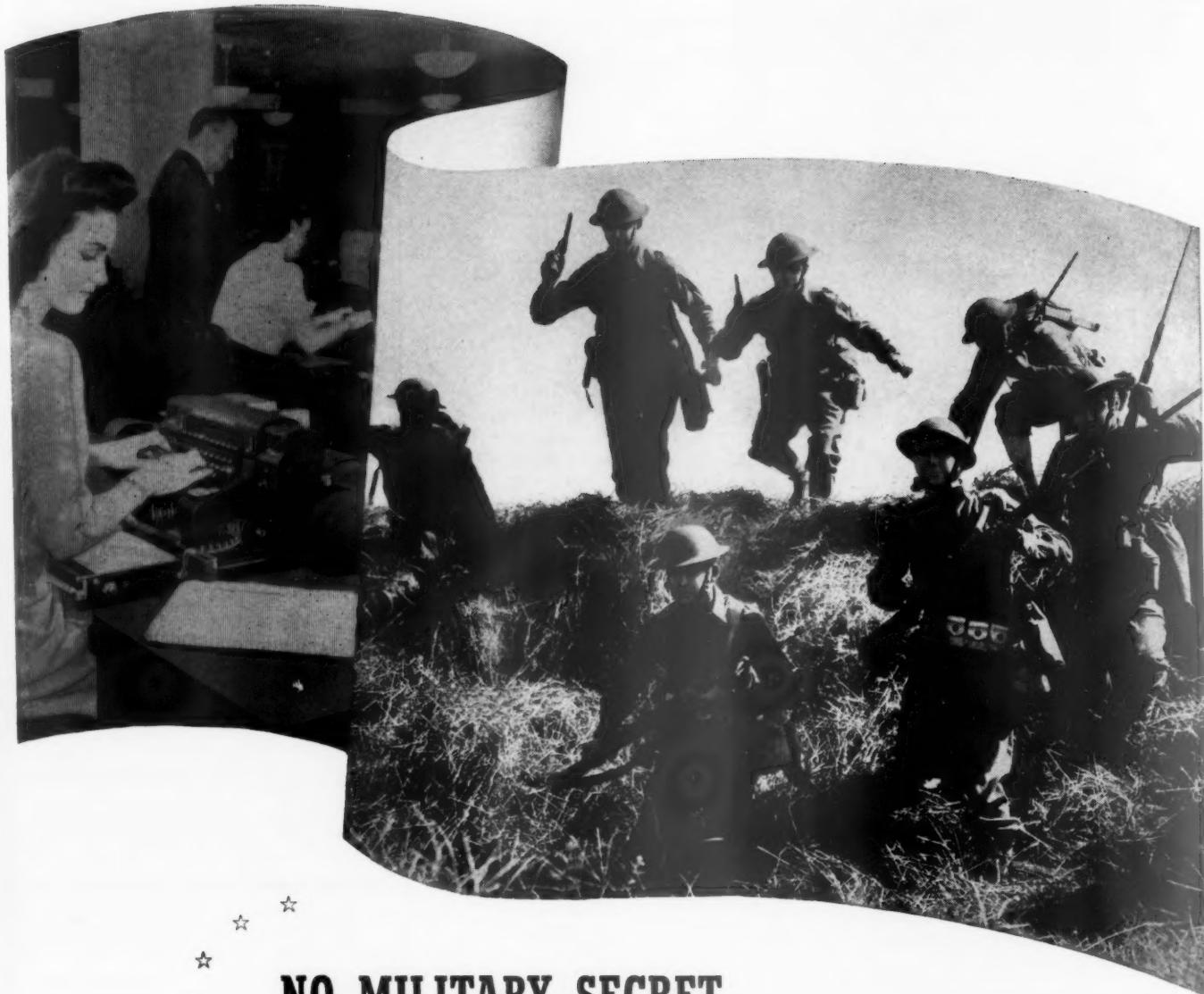
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SEND FOR SAMPLES

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★ ★ ★
NO MILITARY SECRET...
 ★ **your office helps in the attack!**
 ★

The angry roar of guns and the busy hum of office machines are first cousins in more than sound.

For the factories that once made office machines are now hard at work turning out weapons.

America's great office machine industry... of which Underwood Elliott Fisher is proud to be a part... is now devoting practically all its manufacturing skill and experience to the production of war materials.

We possess this great industry

only because in offices like yours energetic, resourceful workers insist on modern machine methods... only because America's office workers lead the world in efficiency. So, in a very direct sense, your office is equipping fighters and to your office workers goes the credit.

And here is our promise to such workers, several million of them our valued customers.

No matter what the difficulties, our maintenance service will continue undiminished from coast to coast.

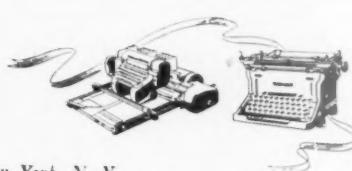
We shall continue to provide spare parts... as well as a complete line of carbon paper and ribbons, unsurpassed in quality, for every make of office machine.

And we shall continue to devise and suggest methods for *conserving* their typewriters, adding and accounting machines and for *operating* these machines with greater efficiency.

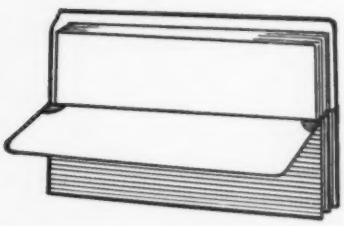
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Helps Speed The Nation's Victory

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When writing Underwood Elliott Fisher Company please mention Purchasing



For Your Bulky Filing

You need the Keystone Quality that's built into these products, in material and workmanship:

Expanding File Pockets —

With capacity for bulky files and strength for long and hard use.

Expanding Envelopes — Wallet Style

With our new "Fi-Lox" Fastener or with Tie Tape
In Red Rope or Jute Manila
For Filing or Carrying of Papers.

FiberstoK File Fasteners

Non-Metallic—They save steel and tin
Fast-Locking—Compressor Style
All popular Centers—1-inch and 2-inch capacities



Use these Fasteners with —

Keystone Folders — Pressboard and Red Rope

Expanding—Two-piece style, or with cloth expansion gusset.
and with

Keystone Binder-Covers

For Instructions, Reports, Statistics, Sales Bulletins, Reference Data—

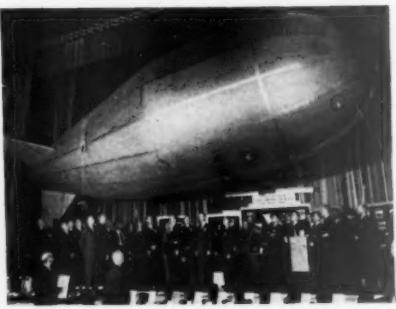
Write for samples to

KEYSTONE ENVELOPE COMPANY

437 Moyer Street
Philadelphia, Pa.



WAR PRODUCTS DISPLAY



United States Rubber Company recently held an extensive war exhibit in New York City. Two huge barrage balloons were inflated in the ballroom of the Waldorf-Astoria Hotel as part of the showing which demonstrated the rapid conversion from peace to war products. Hundreds of other war products were shown.

One of the balloons, looking like a giant silver fish, was the new British type that has operated successfully in defending strategic areas of England. The other was the convoy type used to safeguard vessels at sea.

Near the balloons were inflatable boats being made for the Army, Navy and Marines, ranging in size from the one-man parachute boat for single-seater fighter planes to the 10-man assault boat of the Marines. The emergency life boats for planes are orange in color for quick visibility; the assault boats, grey-green for invisibility.

An important part of the exhibit was a large group of fuel cells, airplane gasoline tanks that seal themselves after bullet hits. They were shown in many shapes and sizes, each designed for a special type bomber.

Life-saving suits that have helped save the lives of many in the Merchant Marine, asbestos fire-fighting suits used on airplane carriers and air fields for emergency work, diving dresses used by the Navy for salvage and construction, pontoons that make possible quick bridge building were among other items. As contrast in adjoining rooms of the Waldorf, were complete displays of peace products, not now in production.

The prime reason for the exhibit was to bring home to district managers all aspects of conversion and to educate salesmen who are now employed in factory training schools.

111

PLASTIC FACILITIES ARE POOLED

Plastic War Production Association, a group of leading plastic firms in this area with headquarters at 122 East 42nd Street, New York, N. Y., has been certified by the WPB "as a war production association appropriate in form and character to the fulfillment of the objectives of the War Production Board". The certification has been formally approved by the Attorney-General.

The purpose of the PWPA is to pool the engineering, research and manufacturing facilities of its members for the

L.L.BROWN BOND Paper

MILLS AT ADAMS, MASS.

ESTABLISHED 1849

ADVANCE BOND*

100% New White Linen & Cotton Fibres

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FORWARD BOND

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75% New Cotton Fibres

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50% New Cotton Fibres



*Permanent
grades

HOTEL PHILADELPHIAN FORMERLY HOTEL PENNSYLVANIA

DANIEL CRAWFORD, JR., Mgr.
39th and CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA

Our courteous and competent staff will give you the utmost in friendliness, comfort and service. Conveniently located to all stations, and only five minutes away from the heart of the business section.

600 ROOMS

Each with bath from \$3.00 up

RADIO IN EVERY ROOM

Lounge and Restaurants
Unrestricted Parking to 3 a.m.

(Continued from page 154)

benefit of the various Government branches placing war contracts. The membership of PWPA consists of plastics concerns whose facilities are widely varied as to types of work. By coordinating the combined facilities of the group, the maximum contribution to the war effort is made by members of the association.

These facilities include presses, machinery and finishing equipment capable of producing such items as fuse boxes (various types), uniform insignias, helmet liners, gas mask valves and guards, machine gun grips, pistol grips, gun stocks, bayonet scabbards, shell components, range finder indicators, horse and mule mask parts, crystal holders, bomb release brackets, bomb housings, shipping plugs for bomb ends, shell windshields, aircraft fair-lead insulators, signal lamps and many others too numerous to mention. In most instances the use of plastics for such items is replacing critical metal materials needed elsewhere. Specifications covering the use of plastics to replace metals have already been issued by various Government agencies or are in process of being issued.

Contacts with various Government agencies will be maintained by the Association's Contacting Officers, whose duties will include the development of new applications of molded, extruded and fabricated plastics as applied to war work, instigating the conversion of specific requirements, etc. One of the important functions of the PWPA will be to develop, through research and experimentation, in close cooperation with the various Procurement Offices of the Armed Forces, new applications of plastics which will result in substantial and necessary conservation of vital metals.

The executive committee of PWPA includes Leo Adenbaum, Accurate Molding Corporation, Brooklyn, N. Y.; Maurice Witt, Atlas Appliance Corporation, Brooklyn, N. Y.; Adolph Cohn, Glassoloid Manufacturing Company, New York City; Leon Lautin, Eagle Molding Company, Long Island City; Charles Fischett, National Fabricating Company, South Ozone Park, Long Island; C. W. Marcellus, Universal Plastics Corporation, New Brunswick, N. J.; Joel Kronman, Victor Metal Products, Brooklyn, N. Y.; R. D. Werner, R. D. Werner Company, Inc., New York, N. Y.

Murray Frankl, the authorized Contracting Officer of PWPA with offices at 122 East 42nd Street, Room 422, New York, N. Y., telephone Murray Hill 5-9691, is available at all times.

1 1 1

Edward L. Wilcox has been appointed Purchasing Agent for the Naval Air Station at Quonset Point, R. I.

Carl Plant has been appointed Purchasing Agent at the Hotel Fifth Avenue, New York City, succeeding George Leary. Mr. Plant was formerly associated with the Hotel Towers of Brooklyn and the Hotel Edison in New York.

This book

MAKES PAPER SELECTION EASY

230 PAGES . . . FLAT OPENING . . . IT'S FREE

HERE IS a paper cyclopedia that ought to be on your desk. In its 230 pages are sampled 25 types of paper, most of the kinds that you buy for the office needs of your company. There are 27 pages of informative material. It is about 5½ x 8½ inches in size, about 1½ inches thick—a handy size for either the drawer or the corner of your desk.

Since the book was bound, there have been governmental restrictions put upon paper—some colors, some weights, some sizes have been pushed out of production, yet many of these items are still available from the inventories of Hammermill Agents, and will be for weeks or months to come. Present production may not always match the sheet sampled, but Hammermill papers as made today continue to do a competent job of serving the business user with satisfaction.

Whether you are ordering letterheads, forms, accounting record sheets, file cards, or paper for your office duplicators, you will find this book a welcome companion.

If you do not have a copy of the "Sixth Edition, Comprehensive Sample Book of Hammermill Papers", just dictate a simple request for it today . . . no obligation, and no paper salesman will follow up unless you request it. Mention PURCHASING, and write Advertising Department, Hammermill Paper Company, Erie, Pa.



Hammermill is very proud to be the first recipient in the paper industry to receive the coveted Army-Navy Production Award — an evidence that **PAPER IS WAR MATERIAL**.

When writing Hammermill Paper Company please mention Purchasing

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sample on business letterhead. Write for your free sample. See for yourself that TEMPLAR DuroLead is almost unbreakable.

"Busted points how can I be busted points expected to write war orders when these pencil points keep busting . . . get me a TEMPLAR DuroLead quick before I pull out all my hair."

This won't happen in your office when TEMPLAR DuroLead Pencils are used. They're made to take all the normal strain and then some—without breaking. They're 25% to 75% stronger than standard 5¢ pencils. Switch to TEMPLAR DuroLead, the almost UNBREAKABLE pencil.

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Made expressly for checking on blue prints, but will also be found suitable for all other checking requirements.

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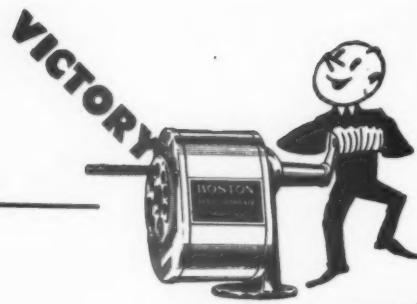
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—VICTORY COMES
A LITTLE CLOSER!**

Every time you turn the handle of Model KS—dependable Boston Pencil Sharpener—ultimate victory comes nearer. Why? Because the material and skill that for generations has gone into the making of other Boston models now is diverted to the war effort, to the big job of winning the war. Model KS carries on for the duration so, when you sharpen your pencils with your present KS or a new KS, you are helping us to help the government. And, believe us, KS will do a more-than-adequate job for every pencil sharpening purpose! Yes, it's KS for the duration—and only KS. That's the model we are standardizing on to release materials, tools and engineering skills to help win the war.

Concentrate on KS and put the money you save into War Bonds and Stamps. Every loyal American is putting at least 10% into Bonds and Stamps.

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OFFICES IN PRINCIPAL CITIES

Could A Fire Knock You Out?

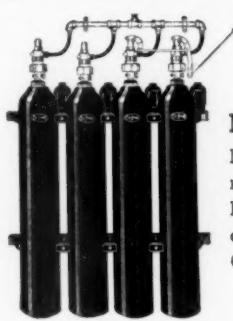


Perhaps your answer is, "No. We have fire extinguishers and we're only a few blocks from the fire house." Good. But maybe your production conditions are more hazardous today? What about water damage? How long will production be stopped until the fire is under control? And how long might you be shut down after a fire?

IT'S SAFER because IT'S FASTER

With a fast blast of cold C-O-TWO carbon dioxide gas, a sudden blaze is literally knocked out before you could yell "FIRE". Carbon dioxide, one of the fastest fire extinguishing agents kills fire in split seconds—without damage to equipment or materials.

C-O-TWO PROTECTION



INSTANT ACTION

Permanently installed automatic or manual system may be engineered to protect one or more spaces from the one C-O-TWO installation.

FOR FAST KNOCK OUT

In laboratory or bench fires, these small, fast acting 4, 10 and 15 pound cylinders of C-O-TWO carbon dioxide gas kill fires almost instantly.

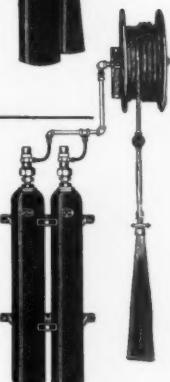


QUICK AS THE WIND

With C-O-TWO hand and wheeled type portables, carbon dioxide is directed at the base of the fire, killing the fire—without damage—in seconds.

SMOTHERS FIRE

Fixed hose reel type with 25 feet of fast uncoiling, non-kinking hose, will put out fires in electrical machinery, dip-tanks or storage vaults.



C-O-TWO is a registered trademark. To be safe, specify C-O-TWO and this company's name

C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK, NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

When writing C-O-Two Fire Equipment Company please mention Purchasing

Among the ASSOCIATIONS

INSURANCE COMPANY BUYERS ELECT NEW OFFICERS FOR 1942-1943

J. A. Young, Assistant Secretary of the Monarch Life Insurance Company, Springfield, Mass., has been elected President of the Association of Insurance Company Buyers for 1942-1943, succeeding Walter B. Joyner. Mr. Young has served as Secretary of the Association for the past two years and as a member of the Executive Committee. Other new officers elected include:

Vice President, J. Philip Camp of the Phoenix Mutual Life Insurance Company, Hartford.

Secretary, Edwin Johnson of the Massachusetts Mutual Life Insurance Company, Springfield.

Treasurer, William E. Lutz of the Caledonian Insurance Company, Hartford.

Executive Committee, R. L. Jones of the Security Insurance Company, New Haven; Donald Sias of the Massachusetts Indemnity Insurance Company, Boston; and George Woodard of the Factory Insurance Company, Hartford.

Speaker at the annual meeting, which was held at the Wampanoag Country Club, Hartford, was Walter Lindsey, Manager of the Insurance Methods Division of Remington Rand, Inc. Mr. Lindsey reviewed the present situation in regard to the Purchasing Agent's problems in securing materials, and presented suggestions for (1) maintenance of equipment under existing conditions, and (2) substitutions for supplies which are no longer available.



EDWIN JOHNSON
Secretary

CANADIAN PURCHASING CONFERENCE

The eighteenth annual Business Conference of Canadian Purchasing Agents' Associations was held at the Royal York Hotel, Toronto, on Saturday, September 26th. The Hamilton Association served as the sponsoring group, and provided the chairman of the various committees connected with the conference. The program was keyed to practical topics of present day procurement under the conditions of a war economy, and was featured by questions and discussion following each of the principal addresses. The following program was presented:

Morning Session

Chairman: J. S. M. Hayes, Purchasing Agent of Shipping Containers, Ltd., Montreal, and President of the Montreal Association.

Address: "The Commodity Markets," by B. H. Yardley, Purchasing Agent of The Stanley Works of Canada, Ltd., Hamilton, and Past President of the Council of Canadian Purchasing Agents' Associations.

Address: "The Present Outlook for Transportation," by Stuart B. Brown, Manager of the Transportation Department, Canadian Manufacturers' Association, Toronto.

Address: "Simplification in Industry and Business," by Thomas J. Brook, Division of Simplification, Wartime Prices and Trade Board, Ottawa.

Luncheon Meeting

Chairman: J. Frank Walker, Purchasing Agent of Frost Steel & Wire Company, Ltd., Hamilton, and President of the Hamilton District Association.

Address: "Wartime Prices and Trade Board Program," by R. F. Chisholm of the Wartime Prices and Trade Board, Ottawa.

Afternoon Session

Chairman: G. T. Dickson, Purchasing Agent of The Goodyear Tire & Rubber Company of Canada, Ltd., Toronto, and President of the Toronto Association.

Address: "From One P. A. to Another," by George A. Renard, Executive Secretary-Treasurer, National Association of Purchasing Agents, New York.

Address: "The Production Code," by Hardy M. Ray, Classification Code Division, Business Contact Section, War Production Board, Washington.

Addresses and Discussion: "Priorities, and the Production Requirements Plan," by H. W. Tucker, Executive Assistant to the Director-General of Priorities, and



J. A. YOUNG
President



J. P. CAMP
Vice President



W. E. LUTZ
Treasurer

NEW OFFICERS OF INSURANCE COMPANY BUYERS ASSOCIATION

KEEP 'EM "METERING"...



with this
Quick-Check System!

Meters are but one of many industrial instruments that are essential in the war-production of most plants. They're too important nowadays to permit any risk of interruptions or inaccuracies in their operation. Yet, all it takes to get proof-positive assurance against needless instrument shut-downs is a simple maintenance routine.

To help you set this up, Foxboro now offers a complete Quick-Check System of convenient cards containing A-B-C instructions for every major instrument in your plant. There are individual 9"x11" cards for meters, thermometers, gauges, pyrometers and controllers of various types. Attached to your installations or handily filed, they enable even new-trained instrument men to keep your instruments operating at top efficiency for the duration!

Foxboro Quick-Check Cards are available without charge, to any user of industrial instruments. Although designed specifically for Foxboro Instru-

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ments, they serve equally well for other standard instruments. They cover major servicing points important to all makes.

Write for Foxboro Quick-Check Maintenance Cards for your plant, specifying all the different types of instruments you use. The Foxboro Company, 178 Neponset Avenue, Foxboro, Mass., U. S. A. Branches in principal cities of the United States and Canada.



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ALLIED MACHINE & ENGINEERING CORP.
NEW PHILADELPHIA, OHIO



Every building has plenty of places where, in addition to cleaning, deodorizing is essential. You can combine the two operations in one, plus effective disinfecting and insect control, by using

MAGNUS 55-P

This unique solvent-soap compound does a mighty effective cleaning job with practically no scrubbing on the dirtiest areas. Easy on the skin and hands, it is most economical in use, cleaning many more square feet than ordinary cleaners. Yet, it rinses off quickly and thoroughly to leave a film-free, non-slippery surface, particularly on tile or linoleum.

Its pine oil content acts as an effective disinfectant and deodorant. With its use, insect infestation is usually eliminated.

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants.

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WRITE FOR YOURS

Write today on your business letterhead for a free sample container of MAGNUS 55-P, and bulletin describing the many uses of this versatile cleaner.



MAGNUS CLEANERS

When writing advertisers please mention Purchasing

G. L. Jennison, Priorities Division, Department of Munitions and Supply, Ottawa.

Closing Remarks: by Julian G. Davies.
Dinner Meeting

Chairman: Julian G. Davies, General Conference Chairman, Treasurer of the N. Slater Company, Ltd., Hamilton, and Past President of the Purchasing Agents' Association of Hamilton District.

Address: by R. C. Haberkern, Purchasing Agent and Director of the R. J. Reynolds Tobacco Company, Winston-Salem, N. C., and President of the National Association of Purchasing Agents.

Address: "The News and World Affairs," by W. J. McCulloch, Foreign News Editor of *The Hamilton Spectator*.

Conference Committee

General Chairman of the Conference Committee was Julian G. Davies, assisted by the following members of the Hamilton Association:

Vice Chairman, J. Frank Walker of Frost Steel & Wire Company, Ltd.

Program, C. C. Callowhill of the American Can Company.

Registration, Ernest M. Fletcher of Robinson Industries, Ltd.

Hotel Rooms, Robert W. Cross of Hamilton Foundry Company.

Printing and Supplies, George A. Ireland of National Paper Goods, Ltd.

Hotel Meals, C. Russell McNeil of Fuller Brush Company, Ltd.

Publicity, J. Frank Stephenson of Kraft Containers, Ltd.

Treasurer, Russell O. Geddie of Hamilton Facing Mills Company, Ltd.

Hotel Arrangements, Percy A. Walker of Canadian Westinghouse Company, Ltd.

Entertainment, J. Frank Walker of Frost Steel & Wire Company, Ltd.

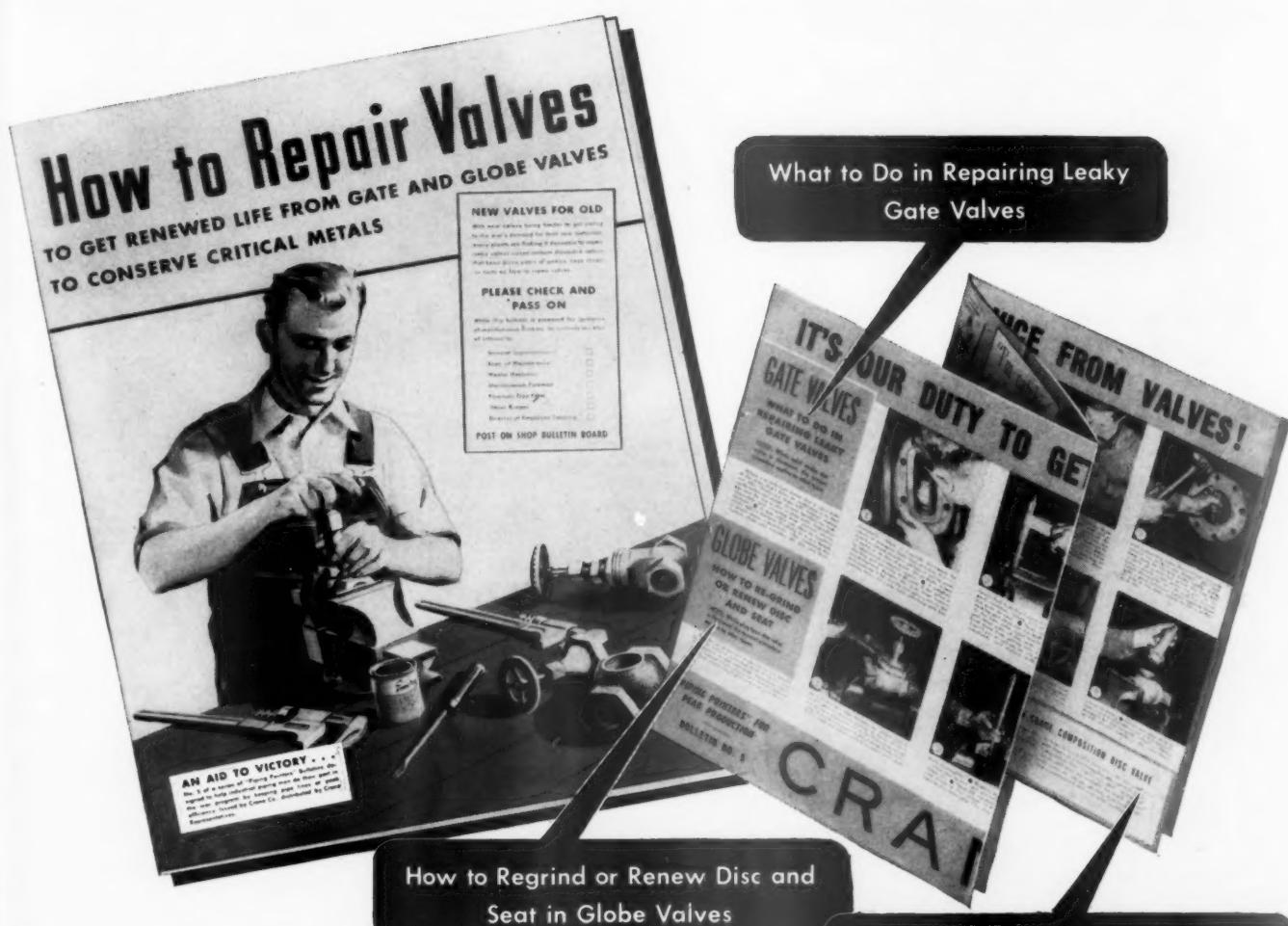
CINCINNATI MEETING

The October meeting of the Cincinnati Purchasing Agents Association was held at the Hotel Gibson on the 13th. Carroll D. Alcott, radio commentator and news analyst, spoke on the military situation in the Pacific war area.

1 1 1

LOUISVILLE BUYERS SPONSOR PURCHASING COURSE

The Purchasing Agents Association of Louisville, in cooperation with the University of Louisville, is sponsoring a course in industrial purchasing policies and methods, classes meeting on Thursday evenings throughout the first semester. The course outline includes the following topics: The Significance of Purchasing, Purchasing Procedure, Buying the Right Quality, Control of Quality, Price Policies, Legal Status of the Purchasing Department, etc. Instruction will be provided by members of the Association, including W. M. Kerrick of the Mengel Co., T. A. Corcoran of the Courier-Journal and Louisville Times, A. Herman of Joseph E. Seagram & Sons, G. G. Bloom of Goodyear Engineering Corp., and R. L. Schmidt of Louisville Car Wheel Co.



How to Regrind or Renew Disc and Seat in Globe Valves

How to Renew Disc in Composition Disc Valves

A "BEST TELLER" FOR PIPING MEN

Look at the timely subjects covered in "Piping Pointers" Bulletin No. 5. What is more important to piping men—NOW—than knowing how to repair valves for better and longer service—to keep war production lines flowing—to conserve metals! We don't know of any other current source of such vital information.

"Piping Pointers" are designed to help you train men for the big maintenance job that faces industry at war. Their content is fully accurate and practical—it's based on Crane Co.'s vast experience as

America's leading producer of valves and fittings. Even veteran workers use "Piping Pointers" to keep up-to-date.

FREE TO ANY PLANT

In "Piping Pointers," Crane shares its basic information with all industries producing for Victory. This service is *absolutely free*, yet countless plants have testified to its inestimable value in maintenance shops and employee training schools. If you're not using "Piping Pointers" now, let your Crane Representative arrange for your supply.



Five "Piping Pointers" Bulletins have been published to date. To meet the demand, extra supplies of all editions have been printed. Get the entire series now—when you need them most. First come first served.

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NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALERS IN ALL MARKETS

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VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

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For a Flexible D-C Power Supply Use G-E RECTIFIERS



Actual installation showing six G-E "500's" mounted three high. The three regulators are at the right. Units can be used individually or collectively.

On any job, equipment must be flexible enough to meet changing power problems. And there are almost numberless ways in which G-E Rectifiers can be used.

G-E Copper Oxide Rectifiers may be grouped in parallel to handle heavy current loads or in series to obtain higher voltage for special processes. They may be switched easily to new locations . . . and may be tier mounted to save space.

Additional units may be added as demands increase . . . they require little maintenance . . . and have practically unlimited life.

Our new catalog can help you! Ask for more information on G-E Copper Oxide Rectifiers for Electroplating and Anodizing. Just write to Section A11210-77, Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut.

GENERAL ELECTRIC

Useful Data for Our Customers

SEYMORE PHOSPHOR BRONZE

ALLOY	Alloy No.	COMPOSITION				Tensile Strength		Elongation Percent		
		Copper	Zinc	Tin	Lead	Hard to Spring	Soft	Hard to Spring	Soft	
GRADE A (Sheet)*	950	95.00		5.00		105,000	45,000	1.5	50	
" B (Rod)*	494	94.00		5.00	1.00	61,000	50,000		40	
" C (Sheet)*	928	93.00		8.00		112,000	55,000	3		
" D (")*	910	90.00		10.00		115,000	60,000	5		
PHOSPH. BRONZE (Rod)*	444	88.00	4.00	4.00	4.00	60,000		20	65	
* Contains Phosphorus										
DITTO	Alloy No.	Rockwell Hardness No. 12.5 lbs. per 1/2 in. dia.		Density or Spec Grav		Melting Point	Elec. Resistance	Elec. Conductivity % IACS 20°C		
		Hard to Spring	Soft	4°C	lbs. per cu. in.	lbs. per cu. ft.	°F			
DITTO	950	95	30	8.86	.320	552	1920	6.1	16.5	
	494	85	30	8.86	.320	552	1920	6.0	16.8	
	928	98	38	8.80	.318	549		7.8	12.8	
	910	100	52	8.76	.316	546		9.4	10.6	
AVAILABLE IN:		Gage Range (Inclusive)		Width Range (Inclusive)		MISCELLANEOUS				
		16-36 B&S	3/4"-1 1/2"	Rods up to	2"	WIRE AND ROD supplied Round Half-Round, Quarter-Round, Oval, Half-Oval, Hexagon, Octagon, Square, Triangular or Fancy-tinned or bare.				
SHEET		16-36 B&S	3/4"-1 1/2"	Sheets up to		SHEET AND STRIP in roll finish or Patent Level. Strip tinned if desired.				
BRIDGE PLATES		16-28 B&S		2"						
CIRCLES		16-36 B&S		40"						
COILS (STRIP)		4-30 B&S								
WIRE		8-30 B&S								
WIRE (Flat)		2"-1 1/2"								
ROD										
ROD (Welding)										

THE SEYMORE MFG. CO., SEYMORE, CONN.

NON-FERROUS SHEET, WIRE AND ROD SINCE 1878

HEINRITZ AT MILWAUKEE

"Red Tape Must Go!" was the topic of an address by Stuart F. Heinritz, Editor of PURCHASING, at the October meeting of the Milwaukee Association of Purchasing Agents, held at the Elks Club on the 13th. Mr. Heinritz outlined the background and purpose of a campaign to eliminate duplication of effort, useless paper work, and time consuming technicalities in governmental purchasing procedures, calling upon government agencies to apply their own slogan—"Will it help speed war production? Will it help to win the war?" The results of this campaign, which has been taken up by radio and in the public press, are already apparent in the determination of the Ordnance Department, the Services of Supply, and other buying agencies, to simplify the requirements of procedure, Mr. Heinritz stated. At the conclusion of his remarks, a resolution was unanimously adopted by the Association, endorsing the campaign and extending cooperation in achieving its objective.

Fred E. Haker of the Allis Chalmers Manufacturing Company spoke on behalf of the scrap metal drive, in which Association members are taking an active part.

The dinner meeting was preceded by a commodity discussion under the leadership of Gilbert L. Hartman of The Oil-gear Company.

AKRON MEETING

"The Story of a Limestone Mine" was the subject of an address at the October 22nd meeting of the Akron Purchasing Agents Association, by George Morrison, mine superintendent of the Columbia Chemical Division of the Pittsburgh Plate Glass Co., Barberton, Ohio. Mr. Morrison described this project which is one of the largest operations of its kind in the world.

WEISMAN AT CLEVELAND

Russell Weisman of the *Cleveland Plain Dealer* addressed the October 15th meeting of the Cleveland Purchasing Agents Association, at the Hotel Cleveland, analyzing current news events and the economic situation. An additional feature of the program was a talk and demonstration by Michael MacDougall, the "Card Detective" who is probably the world's foremost authority on crooked gambling methods. Mr. MacDougall's theme was "Gamblers Don't Gamble."

PORTLAND BUYERS DISCUSS PRP

The operation of the Production Requirements Plan was explained by Richard McCormick of the War Production Board at a dinner meeting of the Oregon Purchasing Agents Association, held October 19th at the Heathman Hotel. Mr. McCormick's address was followed by a question and answer period covering specific PRP problems for the fourth quarter of 1942 and first quarter of 1943.

They're SAVING VALUABLE TIME on War Equipment



-By Simplifying Assemblies with PARKER-KALON SELF-TAPPING SCREWS

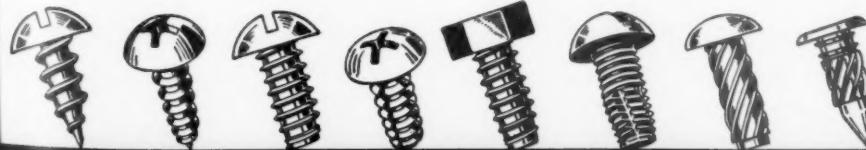
Here are two of hundreds of cases where vital fighting equipment is going into service faster because of the use of Parker-Kalon Self-tapping Screws on numerous assemblies.

Parker-Kalon Self-tapping Screws put an end to "slow-ups" - they eliminate the tapping that goes with machine screws . . . they cut out the handling of lock washers . . . they make fastenings quicker than with bolts and nuts or rivets, in hard-to-get-at places . . . they make fastenings to plastics without the use of inserts.

And every P-K Screw goes in easily and quickly - makes a strong fas-

tening. The Parker-Kalon Quality-Control Laboratory guards against "doubtful screws" . . . screws that look all right but some of which fail to work right.

No matter what material you're working with - sheet metal, heavy steel, die castings or plastics - there's a type of Parker-Kalon Self-tapping Screw - thread-cutting or thread-forming - that will help you save time on your assembly job. Mail assembly details for recommendations and samples, or ask for a P-K Assembly Engineer to call at your plant. Parker-Kalon Corp., 198-200 Varick St., New York, N. Y.



SELF-TAPPING SCREWS FOR EVERY METAL AND PLASTIC ASSEMBLY

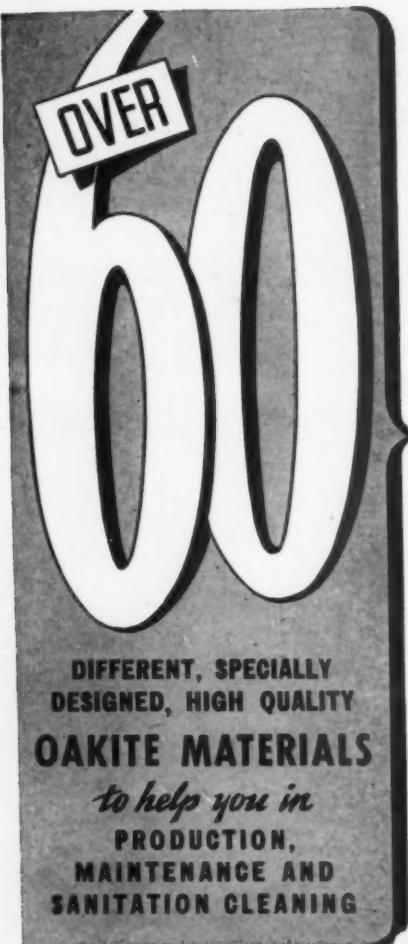
Self-tapping Screws help to get the great Boeing "Flying Fortress" planes into action quicker.



Using P-K Screws to eliminate deep tapping, the Sight Feed Generator Company speeds their portable welding equipment to war production plants and army field repair units. Shown is a mobile machine shop as used in modern warfare.

PARKER-KALON
Quality-Controlled
SELF-TAPPING SCREWS

Give the Green Light • to War Assemblies



Help for You on War Orders Requiring Specialized Degreasing Materials

Today, production begins with purchasing. Before manufacturing schedules can progress smoothly, you must know whether or not essential cleaning materials, for example, are obtainable . . . in sufficient quantities . . . WHEN and WHERE you need them. Here is how Oakite Service helps you answer these vital questions.

Warehouse stocks of Oakite degreasing materials are maintained at strategic centers across the Nation. Deliveries are made as promptly as available facilities of common carriers permit under wartime conditions. Moreover, you get the individual, personal service of our nearby representative, plus the help of our Chemical Research and Mechanical Engineering Laboratories. So tell us your problems . . . we stand ready to help!

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Shows Methods and Tools
Widely Used for Safe, Fast
Shipment of Vital Ordnance
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war products. Also illustrates the Signode Tools used for safe
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Representatives in Principal Cities Throughout
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ADVERTISERS' EXPOSITION AT SAN FRANCISCO

The fifteenth annual Advertisers' Exposition, under the auspices of the Purchasing Agents Association of Northern California and the *Pacific Purchasor*, was held at the Palace Hotel, San Francisco, October 14th. Industrial exhibits, keyed to the needs of the present situation, filled the Concert Room, Parlors A and B, and connecting corridors, and were open for inspection throughout the afternoon and evening. Luncheon and dinner meetings were held in the adjoining Gold Ballroom.

Guest speaker at the luncheon meeting was Col. Willard Chevalier, Vice President of McGraw-Hill Publishing Co., and Publisher of *Business Week*, who spoke on the topic, "War Is Our Business." A special program of entertainment was presented at the twentieth annual Advertisers' Dinner, held in the evening.

Louis A. Colton of Zellerbach Paper Co. was manager of the exposition, and meeting arrangements were under the direction of the Publication Committee of the Association, consisting of George W. Aljian (Chairman), H. O. Jaques (Vice-Chairman), Clarence G. Ayer, L. G. Bray, James Cowie, Harry L. Hintze, Donald C. Oswill, and P. C. Weber.

Luncheon meeting programs during the month included the Marine Corps motion picture "Soldiers of the Sea"; the Libbey Glass Company's motion picture "Blowpipes"; a forum on priorities; a representative of the U. S. Navy speaking on "Navy Day"; and an address on "Winning Foreign Friendship" by Frank H. Backmann of Backmann Hollister & Co.

BIRMINGHAM MEETINGS

Speakers at recent luncheon meetings of the Birmingham Purchasing Agents Association included: John H. McFarland, finger print expert for Jefferson County, "Our State Prison System as Related to the Science of Finger Printing"; J. L. Thweatt, Manager of Swift & Company, "The Meat Packing Industry in Alabama"; and Zipp Newman, Sports Editor of The Birmingham News, "Dusting 'Em Off"—a preview and commentary on important football games and players.

PITTSBURGH PURCHASING AGENTS DISCUSS RED TAPE

The October dinner meeting of the Pittsburgh Purchasing Agents Association was held at the William Penn Hotel on the 20th. Speaker of the evening was Stuart F. Heinritz, Editor of PURCHASING, his subject being, "Red Tape Must Go!" Tracing the background and progress of the campaign against needless complications in governmental buying methods, which are retarding the national war effort by wasting time and manpower, he expressed the hope that new and simplified methods would be adopted to eliminate these practices.

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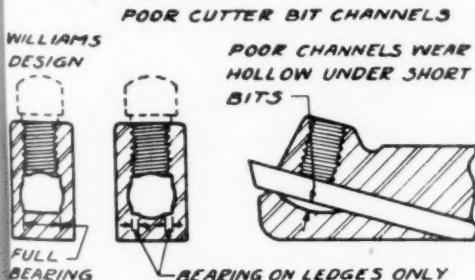
HOW AND WHY WILLIAMS' TOOLS AID WAR PRODUCTION

J. H. WILLIAMS & CO., Drop-Forgings and Drop-Forged Tools, BUFFALO, N. Y.

DATA ON WILLIAMS' TURNING-TOOLS

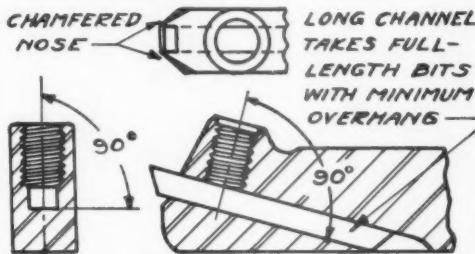
Since metal turning constitutes a major operation in our war production program, consideration of available tools for this purpose is timely. The Tool Holder system offers definite advantages over solid, forged tools for lathe, planer, shaper, etc. Greater convenience, efficiency and economy result with the use of properly designed Tool Holders, which save practically all waste of costly high speed steel, eliminate all dead stock of heavy forged tools, do away with all blacksmith labor and much grinding, and reduce lost man and machine hours waiting for tools substantially to zero.

Tool Holders, however, to satisfactorily replace solid forged tools, must be engineered to withstand the severe treatment which modern metal turning imposes on the cutting tool. Williams' Holders are drop-forged from a specially selected grade of steel, treated and hardened to develop maximum resistance to all wear and insure a hard rigid seat for the cutter directly under the holding or locking device. This tends to prevent cutter breakage which is due largely to the recess or pocket formed by short bits being forced into the cutter seat of the holder when the shank has not been properly hardened.



The bottom face of the shank of all Williams' Holders is rechecked after heat treating to insure a flat, square surface for the holder to rest on.

In Williams' Turning Tool Holders the nose is chamfered to permit convenient use in close quarters where space is limited. Set Screws are located at exact right angles to the cutter bit channel to provide full contact of the point of the screw with the cutter bit and insure maximum holding power. Screws and tapped holes are held to the close fits essential for long life under gruelling tool holder service.



Sketches above illustrate a straight shank Williams' Turning Tool Holder. Note that the extremely long cutter bit channel extends thru the bottom face of the shank, providing maximum entry for the cutter bit. This feature assures minimum overhang when a full-length bit is used, thus reducing the danger of cutter bit breakage.

Sold by Leading Industrial Distributors Everywhere

Carbide Turning-Tool Holders

Since tungsten carbide cutters approach a diamond in hardness (88-92 Rockwell A), the brittle nature of this material makes it absolutely essential that the cutter bit be held rigid and the cutting edge supported as much as possible.



To provide a rigid tool and assure maximum support of the cutter, the shanks of Williams' Carbide Holders are made heavier and longer than regular Turning-Tool Holders of equal cutter capacity. The cutter channel is broached parallel with the base of the shank rather than at the usual 15° angle. The parallel broaching of the cutter slot permits proper grinding of the cutter so as to give maximum support to the cutting edge.

Regular Turning-Tool Holders



Straight Shank; for cutters 3/16" to 3/4" square.



Also made with Right and Left Hand offset Shanks.



Straight Shank; for cutters 5/16" to 5/8" square.

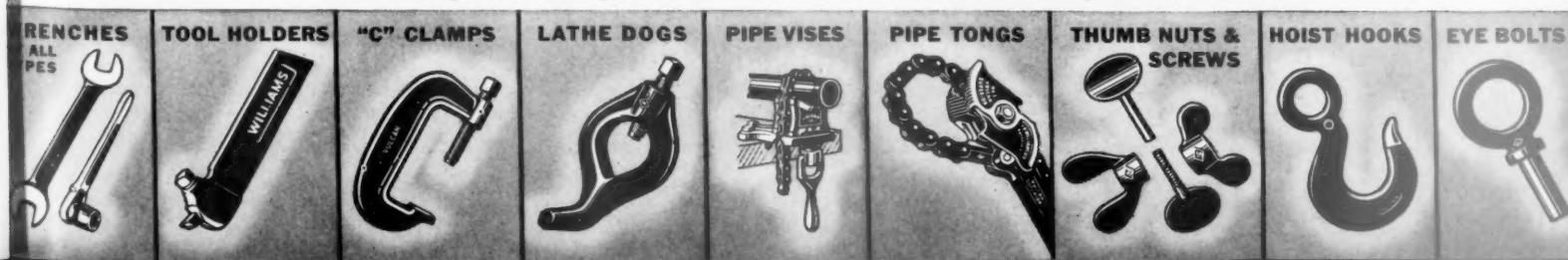


Also made with Right and Left Hand offset Shanks.

WILLIAMS

Superior Drop-Forged Tools

Headquarters
for over half a century for
DROP-FORGINGS and DROP-FORGED TOOLS



LOWELL
SAFETY-STEEL
WRENCH

THE
SAFE AND SURE
REVERSIBLE
RATCHET THAT
WILL SAVE
TIME AND
MONEY

A New Handle for
any broken one
returned

MANUFACTURED BY
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Worcester, Mass., U.S.A.

RENDAR AT PROVIDENCE

George A. Renard, Executive Secretary-Treasurer of the N.A.P.A., addressed the October 26th meeting of the Rhode Island Purchasing Agents Association on the topic, "From One P. A. to Another," interpreting the present economic situation as it affects the purchasing function. A commodity discussion on coal and fuel oil, and latest advices on fuel oil rationing, were presented by Fletcher P. Burton, Chairman of the State Fuel Commission, and a representative of OPA. Also on the program was a sound motion picture on "Bringing In the Scrap."

1 1 1
**FORT WORTH BUYERS HEAR
TALK ON PRIORITIES**

George Spann of the War Production Board addressed a dinner meeting of the Fort Worth Purchasing Agents Association at the Worth Hotel, October 13th, on recent priority regulations, and answered questions regarding specific problems of the members.

1 1 1
SPRINGFIELD MEETING

A motion picture, "Footsteps to Benares," and an informative lecture on life in India today, were presented at the October meeting of the Purchasing Agents Association of Western Massachusetts by Ace Williams, world traveler and photographer whose articles have been featured in the *National Geographic Magazine* and other publications. The meeting was held at the Hotel Kimball, Springfield, on the 15th.

1 1 1
**TWIN CITY BUYERS ARE TOLD
RED TAPE MUST GO**

Stuart F. Heinritz, Editor of PURCHASING, addressed the October 14th meeting of the Twin City Association of Purchasing Agents at the Minneapolis Athletic Club on the topic, "Red Tape Must Go!" He cited many examples of the needless complications of doing business with the war agencies of government, and how they are interfering with the war production program, reporting that the campaign to eliminate these obstacles is beginning to show results. An additional feature of the meeting was the showing of a new industrial film on the making of wire rope, presented through the courtesy of the Jones & Laughlin Steel Corp., with explanatory comment by Mr. McGee of that company.

1 1 1
LOS ANGELES MEETING

The October meeting of the Los Angeles Purchasing Agents Association was held at the Elks Club on the 8th. Speaker of the evening was Arthur G. Coons, State Price Officer for the Southern California Office of OPA. His topic was: "Major Economic Problems of Price Control." An afternoon round table conference on priorities preceded the dinner meeting.

Speed critical war production
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TRIPLEX
Threaded Fasteners

Fast work in thousands of war equipment plants is aided by millions of quick-threading TRIPLEX Bolts and Cap Screws — accurately made, carefully heat-treated. Write for prices and delivery estimates. THE TRIPLEX SCREW COMPANY, Box 1768, Newburgh Station, Cleveland, Ohio

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Your Distributor is trained to give you a hand on Priorities, too.

Draw on his experience for obtaining the supplies you need. It certainly will be the exception if you don't meet men of your own measure—in fact we are sure they *will* be.

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● In these stressing times it is not possible to make a blanket promise on steel deliveries — but if you need tool steel, alloy steel or stainless steel, call the nearest Jessop office. There your orders and inquiries will receive immediate and courteous attention.

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We need work — you need help — let's get together.

Stewart has enormous manufacturing and ample shipping facilities for production runs of units or parts of units fabricated from angles, flats, tees, rounds, squares, sheets, strips, and plates involving the use of equipment listed at the right.

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ANGLES • FLATS • ROUNDS • SQUARES • TEES • STRIPS • SHEETS • PLATES

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ROCHESTER BUYERS CONDUCT PRIORITIES FORUM

The Purchasing Agents Association of Rochester held its October dinner meeting at the Rochester Club on the 28th. The program consisted of a discussion forum at which four experts—Messrs. Gregg, Rich, Harper, and Weinheimer—of the Rochester Ordnance District and the Buffalo office of WPB answered questions on the Production Requirements Plan and recent developments which may change priorities procedure.

F.B.I. AGENT AT SEATTLE

Edward L. DuBois, special agent of the Federal Bureau of Investigation, addressed the October 8th meeting of the Washington Purchasing Agents Association at the Washington Athletic Club, Seattle, outlining the history and methods of that bureau. His talk was supplemented by a motion picture, "Men of the F.B.I.," showing the training of special agents and the solution of a typical espionage case by the Bureau.

The 13th annual Advertisers' Night dinner will be held at the Seattle Chamber of Commerce on November 12th. Vernon McKenzie, Director of the School of Journalism, University of Washington, recently returned from a year in England, will speak on "England Today and Our United War Effort." It has been decided to omit this year the exhibit of advertisers' products which has formerly been a feature of these meetings.

NORTHWEST PUBLIC BUYERS MEET IN TACOMA

The annual fall conference of the Pacific Northwest Public Buyers Association was held at the Elks Temple, Tacoma, October 23rd. The committee on arrangements includes B. R. Nichols, Tacoma City Purchasing Agent and secretary of the Association, Thomas Spencer of Tacoma School District No. 10, and A. M. Angove of the Board of Contracts and Awards.

CHICAGO BUYERS HEAR ABOUT SYNTHETIC RUBBER

Arthur C. Horrocks of The Goodyear Tire & Rubber Company, Akron, addressed the October 8th meeting of the Chicago Purchasing Agents Association on "Synthetic Rubber." Mr. Horrocks has had a unique experience in the industry. Starting with the Goodyear organization as a production program, he advanced to become production engineer, personnel manager, then into sales work and sales training. He was selected as the first head of the Goodyear Industrial University, and under his supervision 43,000 young men were trained. He was an advisor to the National Association of Foremen, subsequently becoming director, educational director, president, and now chairman of the board of that association. The demands on his time to fulfill speaking engagements forced him to relinquish his duties as active head of the Industrial University, and he is now counsel to the Goodyear Public Relations Department.

...INSPECT YOUR
INSULATIONS
REGULARLY...

NUMBER 6 in a series
of messages to American
industry devoted to con-
serving heat, improving
operation and increas-
ing production by ...

GETTING THE MOST FROM YOUR THERMAL INSULATIONS ...

As the periodic rounds of the watchman safeguard both plant and production, so the regular inspection and maintenance of your heat insulations will insure against the encroachment of costly heat losses. Even the best of insulations can suffer damage from service hazards and abuse. Unless the little losses are found and checked, totals can

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Particularly under today's increased steam pressures and higher process temperatures, it is sound practice to check your insulations—and maintain them. It is equally good practice to specify only efficient, time-tested materials such as Ehret's 85% Magnesia for your additional service needs.



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Jelliiff heavy wire mesh of any suitable material . . . Strongly braced frames . . . Will stand plenty of abuse . . . Round, square, oblong, or oval; the shape to suit your needs.

**THE C. O. JELLIFF MFG. CORP.**

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**TOUGH OVERLAY for
WORN-OUT WOOD FLOORS**

Add years of useful service and improve the efficiency of rough, splintered wood floors with an overlay of durable RUGGEDWEAR RESURFACER. Though light in weight, your new floor will have a smooth, tough, fire-resistant surface. Its resilience will withstand the stress and strain of any vibration. RUGGEDWEAR may also be used for repairing holes, cracks and ruts in concrete floors to a solid feather edge. Easily applied . . . you mix the material and trowel it on. Dries fast.

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NEW ENGLAND ASSOCIATION

The October meeting of the New England Purchasing Agents Association was held at Schrafft's, Boston, on the 5th. Speaker of the evening was Irving T. McDonald, radio news analyst, who spoke on "The War Today." The dinner meeting was preceded by an afternoon conference on priorities.

1 1 1

**NORTHWESTERN PENNSYLVANIA
BUYERS MEET AT BRADFORD**

The Northwestern Pennsylvania Association of Purchasing Agents met at the Emery Hotel, in Bradford, on October 1st. William Frogale of the Erie office of the War Production Board spoke on priorities. M. B. Raines of the Industrial Methods Engineering Co., Cleveland, urged cooperation of all industry with the war program. C. A. Walmsley of the Dresser Mfg. Co., described highlights of the recent Army Show in Cleveland. C. H. Holden of the Raymond Mfg. Co., Corry, Pa., presided. The dinner meeting was preceded by a conference of the Oil Buyers Group of the Association.

1 1 1

COONLEY AT NEW YORK

"Keep It Simple!" was the topic of an address by Howard Coonley, Deputy Director of the Conservation Division, WPB, at the October dinner meeting of the New York Purchasing Agents Association, held at the Builders Exchange Club on the 20th. Mr. Coonley has for the past several months been in charge of the Simplification Branch of the Conservation Division. Millard Bennett, special representative of the same division, spoke on "Tin and the War Effort." At the afternoon forum preceding the regular meeting, a member of the WPB staff discussed the present operations and procedure of the Production Requirements Plan.

1 1 1

**KALAMAZOO BUYERS ENTERTAIN
DISTRICT COUNCIL**

The Fourth District Council, N.A.P.A., met at Kalamazoo on October 9th and 10th. Vice President E. L. Coleman presiding. Members of the Council were guests at the regular meeting of the Kalamazoo Association on Friday evening. The speaker at this session was Dr. Weber of the Department of History, Western Michigan College.

1 1 1

OPA EXPERTS AT TULSA

Harry Canup, price specialist assigned to trade relations in Oklahoma, at the Oklahoma City office of OPA, addressed the October 6th meeting of the Tulsa Purchasing Agents Association on "Responsibilities of the Purchasing Agent under OPA Regulations." A question (Continued on page 172)

CHECKLIST SHOWS HOW
Anchor Sub-Contract Facilities
 CAN SERVE YOU
Quicker and Better

ANCHOR POST FENCE CO.
 offers prime contractors facilities of
 2 plants, machines, trained workers
 and experience on numerous war
 orders. Check these reasons why
 Anchor can help you.

- STRATEGIC LOCATION.** Main plant in industrial center of Baltimore, astride rail, truck, and tidewater shipping lanes. West Coast plant located in San Francisco. Anchor offices in principal cities of the United States.
- MACHINES.** Lathes, shapers, planers, saws, milling machines, drill presses and punches, press brakes, shears, grinders, galvanizing plants, bonderizing plants, blacksmith shops, baking ovens, arc and spot welders, spray booths . . . equipment for sheet metal work, stampings, structural steel fabrication, assembling.
- WAR CONTRACT EXPERIENCE.** Anchor has been engaged for two years on war work ranging from small machined parts to large assemblies. Both as Prime Contractors and Sub-contractors, Anchor has the "know how." We know how to meet your specifications, how to gear our production to your production, how to make our organization a part of yours.
- KNOW HOW.** We offer the experience of a 50-year-old firm which is a leader in the fence, oil burner, and air conditioning industries. We offer the services of engineers who are specialists in licking new metal fabrication problems—and skilled labor specially trained for war contract work.

SEND FOR THIS FREE BROCHURE

Whatever your problem—whether you want a complete manufacture and assembly job, or a single operation, get the benefit of Anchor's broad experience. Send for free brochure, "Anchor's Sub-Contract Facilities"—a complete, detailed picture of Anchor plants and methods, and the special advantages Anchor's war-converted production offers. No obligation. Write, wire, or phone for your copy!



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WITT Cans

are in the "Service" now

WITT production is being called upon more and more to meet the nation's needs. That means fewer cans for civilian uses — that's why WITT CANS cannot meet all present calls.




Helpful Suggestions
How to Care for WITT CANS

Paint cans inside with asphaltum paint. Paint name or symbol on cans and lids — prevents loss or theft of cans, and helps to identify them. Never sprinkle or wet ashes before putting them in cans. Ashes contain sulphur and when wet, a mild sulphuric acid is formed.

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For 5 pieces, 500 or 5,000!

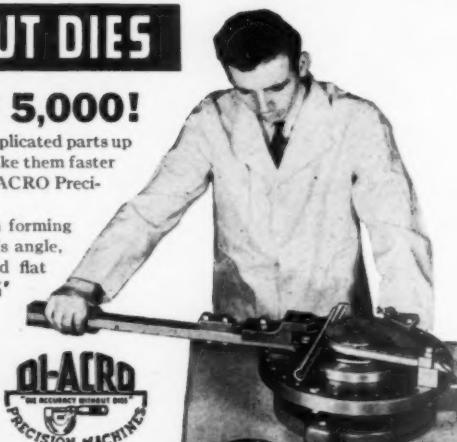
If you need any quantity from just a few duplicated parts up to sizable production runs — you can often make them faster and avoid die expense and delay by using DI-ACRO Precision machines — Shears, Brakes, Benders.

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(Continued from page 170)
and answer period was led by M. O. Huntress, also of the OPA Oklahoma City office, who specializes in service prices.

Also on the program was a timely talking picture, "Get in the Scrap!" presented under the auspices of Rufus H. Carter of Dallas, Fred G. Vincent of Oklahoma City, and members of the Industrial Salvage Section of WPE.



CHAPPLER AT DAYTON

Bennett Chapple, Assistant to the President of the American Rolling Mill Company, addressed a dinner meeting of the Dayton Purchasing Agents Association at the Engineers Club, October 8th. His topic was, "After Victory—What?"



PRIORITIES MEETING AT TOLEDO

Lyman C. Savage, priorities specialist of the Toledo office of the War Production Board, spoke on current priorities regulations and procedure at the October 15th meeting of the Toledo Purchasing Agents Association, at the Hillcrest Hotel.



HOWARD PAPER COMPANY ENTERTAINS COLUMBUS ASSOCIATION

The Howard Paper Company of Urbana, Ohio, was host to the Columbus Association of Purchasing Agents at a dinner meeting and plant inspection trip on October 12th. The trip to the Howard mills was made by automobile, and present-day methods of paper making were explained and demonstrated.



CONNECTICUT ASSOCIATION MEETS AT NEW HAVEN

The October meeting of the Connecticut Purchasing Agents Association was held at the Union League Club, New Haven, on the 27th. Speaker of the evening was Dr. E. Kent Lackey, Director of the Speakers' Bureau, Connecticut State Defense Council, and his topic was: "One World, Indivisible."



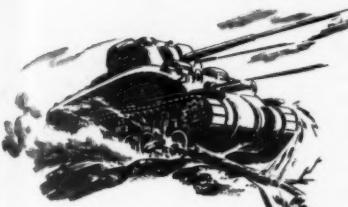
DISTRICT COUNCIL MEETS WITH CANTON ASSOCIATION

Officers and national directors of the Associations in District 6, N.A.P.A., were guests of the Purchasing Agents Association of Canton and Eastern Ohio at a dinner meeting in the grand ballroom of the Onesto Hotel, Canton, on October 16th. B. T. Bonnot, president and general manager of the Bonnot Company, and new president of the Canton Chamber of Commerce, addressed the meeting. The committee in charge of arrangements included John F. Buchman, Jr., Karl Foltz, Max Birzer, Melville F. Shaffer, and Charles Witter.

The District Council held its business meeting on Saturday morning. Eli Jensen of Springfield, National Vice President for District No. 6, presided.

Why We Roll Out the BARREL SPRING

SPRING NEWS



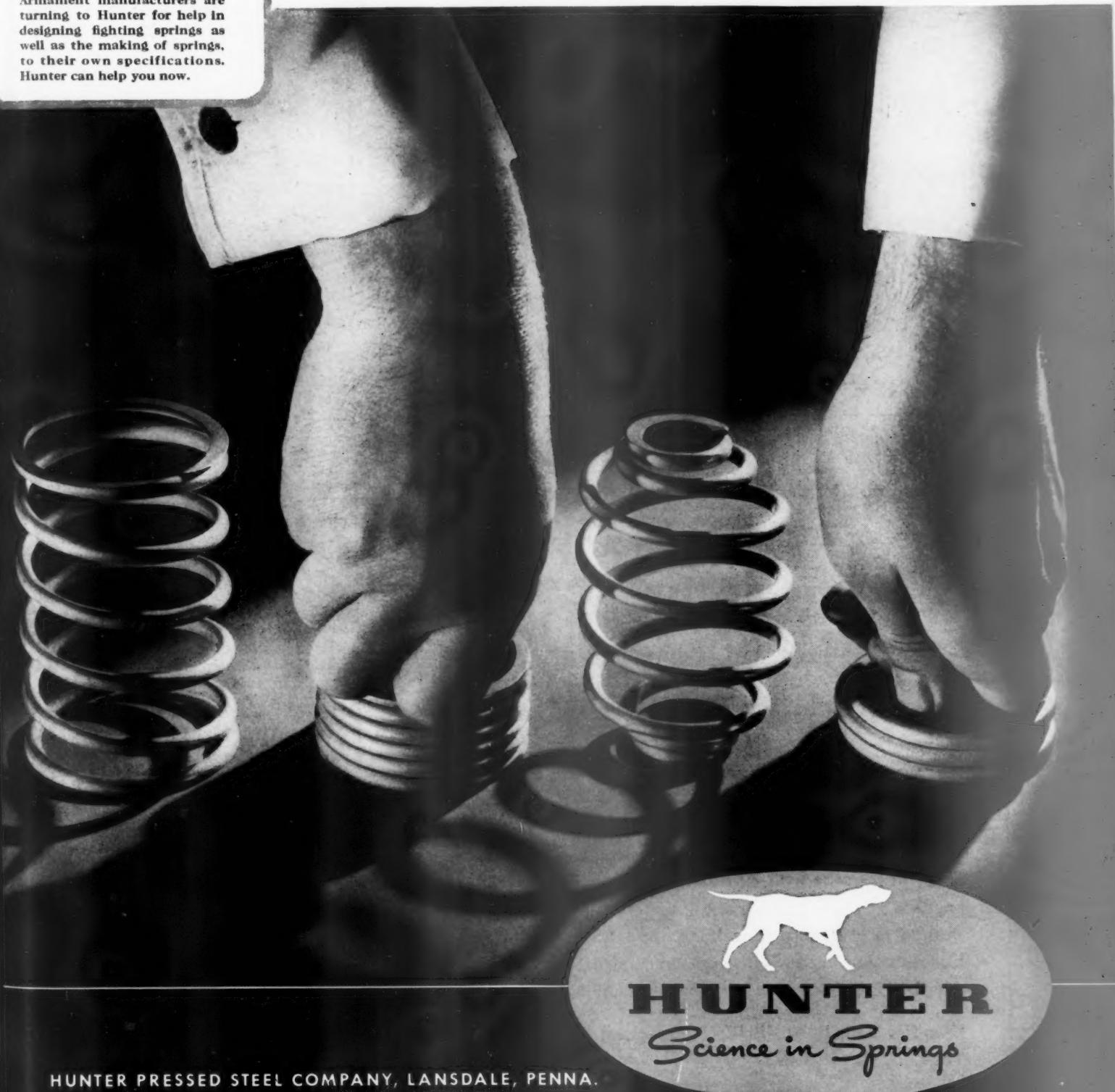
FIGHTING SPRINGS

Springs are at war! Hunter is making springs for many important units of our forces battling against the Japa-Nazis.

Armament manufacturers are turning to Hunter for help in designing fighting springs as well as the making of springs, to their own specifications. Hunter can help you now.

SPRING MAKING is a science, as interesting and exact a science when you delve into it as chemistry, physics or engineering. As an elementary example of what we mean, consider for a moment the case of the barrel spring. The barrel spring is a member of the compression spring family—but there is a wide range of forms and applications within the barrel spring group itself. For example, they can be designed as in the illustration below, so that the coils nest neatly within themselves in order to save space by reducing the effective solid height.

So much is obvious. Not as simple are the important calculations for determining the gradient of the spring, that is, the pounds per inch of deflection, and for finding the shearing stress in the coil, for each of the many types of springs. Here the knowledge of a specific spring maker such as Hunter, fortified by practical experience and a fund of laboratory research, speeds the right answers. Now, with production racing against time, and in the future, it will pay you to buy "science in springs" because there is only one right spring for the job.



HUNTER PRESSED STEEL COMPANY, LANSDALE, PENNA.

HUNTER
Science in Springs



Purchasing Agents Too Can Speed Production

By standardizing on these *Positively Unbreakable* hack saw blades that permit all hack sawing machines to operate at maximum speed and maximum feed, you can increase the output of every hack saw in your plant. In MARVEL High-Speed-Edge Hack Saw Blades the fastest cutting, longest lasting cutting edge has been welded to a body of tough alloy steel. This composite construction gives strength to stand up to any load, and assures that each blade will last the full life of its cutting edge. Buy MARVEL High-Speed-Edge Hack Saw Blades from your local industrial distributor.

ARMSTRONG-BLUM Mfg. Co.

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CAP SCREWS
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Man, preferably with experience in industrial purchasing, capable of writing and judging technical editorial material, wanted as assistant. Excellent opportunity for man with highest references. State experience, draft status and other details. Inquiries treated confidentially.

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NATIONAL POWER SHOW

Industry's increasing concentration on the war effort has raised the aim of the 15th National Exposition of Power and Mechanical Engineering, pointing to the common objective of increasing production in plants engaged in war work. The Exposition, better known as the National Power Show, is to be held in New York City November 30 to December 5 and already more than 150 exhibitors have taken space, while there is an increase of interest on the part of other manufacturers in making reservations.

Power consumption is still climbing toward the estimated total of 249 billion kilowatt hours this year, with an increase of possibly 15 per cent in sight for 1943. An increase of 2,000 to 2,500 per cent in tools must be faced, along with need for much new processing equipment. Production rates are being stepped up in every operation that is working now. Employment is increasing as fast as training and up-grading programs can be made to work. And all this means to executives, factory managers and engineers, more power and more effective use of all the power that can be obtained.

With changes in manufacturing routine, due to wartime plant conversions, frequent and sometimes drastic alterations in power demand are being encountered. This applies to the load factor on prime movers and power drives. It applies to supplies of water, steam, oil, compressed air, electricity used in processing, and also to the energy consumed in moving all materials of production through the plant.

All the problems that are geared to power as the mainspring of industry funnel down through the group of exhibitors, whose leaders have been represented at the National Power Shows for the last twenty years. This year the aspect of the Exposition is changed by the need for more power and for using power more efficiently than ever before—but on production problems that are relatively new.

Exhibitors, contributing to the war effort, are devoting their plans for the Exposition to points involving service to industry. Introduction of new lines of machines and equipment have even been suspended in many instances in order to aid in finding new and better ways of doing things, when the best that can be done is to "regrind, weld, repair and conserve."

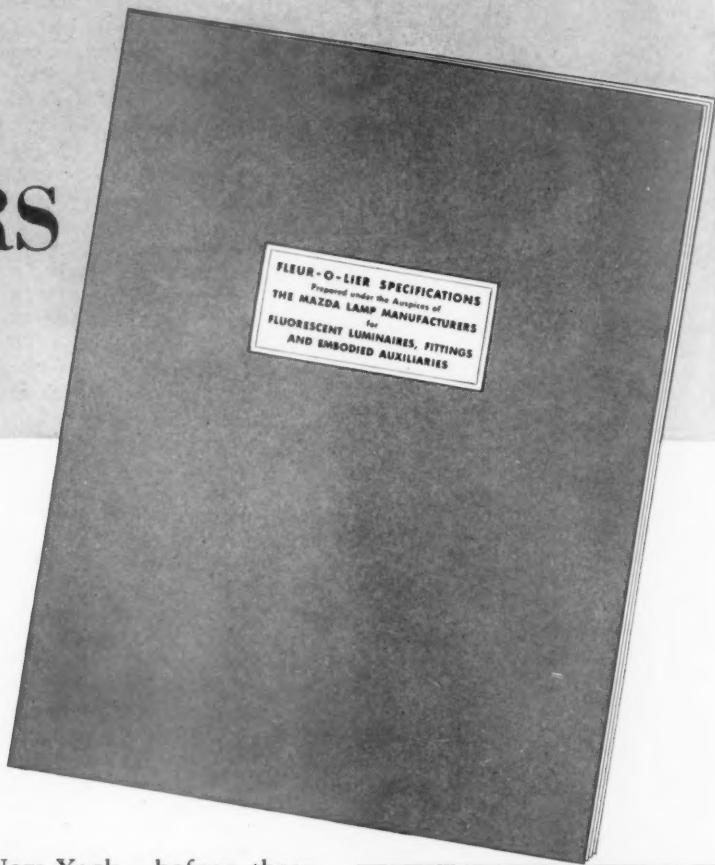
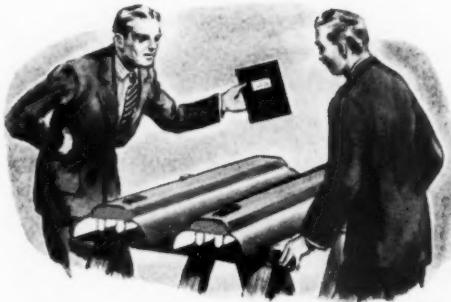
As heretofore, the power theme will dominate the Exposition. The range of exhibits includes such items as refractories, coal and ash handling equipment, dust collectors, insulation, combustion controls, indicating and recording instruments for the power house, boiler tubes, pumping, piping, all types of valves, steam traps, steam specialties of many kinds and a variety of power plant supplies.

An exhibitor of stokers will show equipment especially designed to increase steam output from present boilers, producing higher efficiencies by using less coal tonnage or even eliminating the use of scarce fuels by the employment of local fuels and saving on rail trans-

(Continued on page 176)

Planning war plant lighting? First get these specifications...

learn why FLEUR-O-LIERS are right!



1. These manufacturing specifications for Certified FLEUR-O-LIER fixtures have been written to protect those who *specify* and those who use fluorescent lighting. Skilled lighting engineers of the MAZDA Lamp manufacturers put their full knowledge into the setting up of these standards—to assure you of highly satisfactory service from fixtures and efficient performance from lamps.

2. No specifications are more complete. They cover not only reflectors but auxiliaries (ballasts and starters) as well—a full check on electrical, mechanical and lighting performance.

3. This information takes you "behind the scenes." It gives you full details of how fixtures built to these specifications are tested and checked by Electrical Testing Laboratories,

Inc., of New York—before these impartial experts issue the right to use the famous FLEUR-O-LIER Certification Label. Over 40 leading fixture manufacturers are already making fixtures to these standards and participation in the program is open to *any* manufacturer who complies with the FLEUR-O-LIER requirements.

4. Plant engineers, architects, purchasing departments can have the full assurance that fixtures bearing the FLEUR-O-LIER label have been *Certified* by Electrical Testing Laboratories as meeting all of these specifications—making unnecessary any further test or check by the user.

★ A request on your business letterhead will bring the actual fixture specifications to you promptly. Write **NOW** to FLEUR-O-LIER MANUFACTURERS, 2139-11 Keith Bldg., Cleveland, Ohio.



Covers such important points as:

Efficiency—safety—construction—finish—brightness—flicker correction—listed materials—high power factor—ballasts and starters—temperature rise.

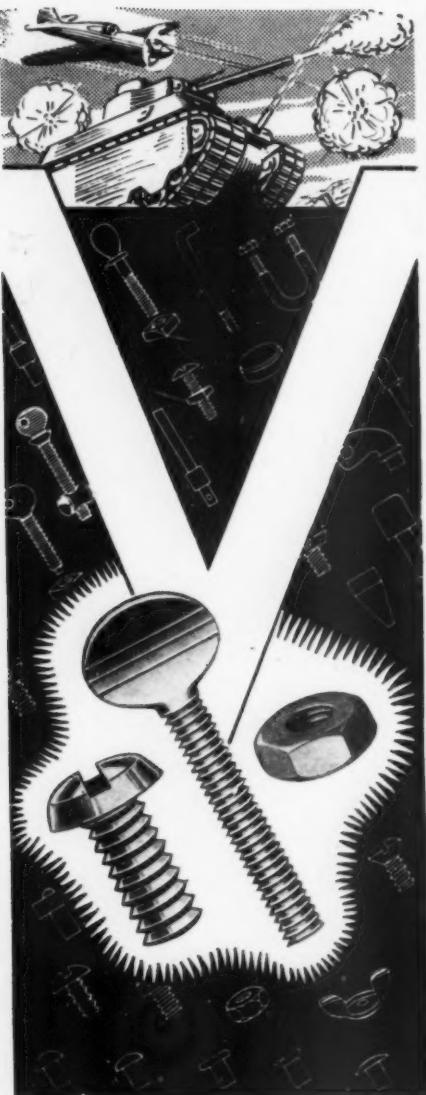


FLEUR-O-LIERS

CERTIFIED FIXTURES FOR FLUORESCENT LIGHTING

Participation in the FLEUR-O-LIER MANUFACTURERS' program is open to any manufacturer who complies with FLEUR-O-LIER requirements

When writing Fleur-O-Lier Manufacturers please mention Purchasing



VITAL PARTS FOR VITAL PRODUCTS

* War production in your plant requires many parts which you can get at Central Screw Company . . . and get them as scheduled. Small upset parts, standard and special screws, nuts and bolts, threaded wires, rods and studs for every war production need.

WRITE TO CENTRAL today. State your requirements. Enclose blueprint or sketch if possible. Get prices, delivery dates and qualified engineering advice. Every inquiry promptly answered.

CENTRAL
SCREW COMPANY
3515 SHIELDS AVE • CHICAGO, ILLINOIS

(Continued from page 174)
portion. Labor is saved by reducing manhours in the boiler room, while bunker-fed models eliminate manual handling of coal.

An exhibitor of turbo-compressors will show models which are being extensively applied in war plants for speeding up production on heat treated parts. Further equipment to be shown by the same exhibitor features the use of industrial vacuum cleaners for handling a range of materials from explosive dusts to steel slugs.

Reflecting the widespread introduction of new materials, a manufacturer of industrial fans and cooling tower installations will feature a propeller type fan having plastic and fabric blades with all-steel welded hubs. This unit has an adjustable pitch.

Recognizing the demand for faster, trouble-free service from old and remodeled equipment throughout the plant as well as in the power house, a manufacturer of centralized lubricating systems will show a line including hand-operated and power-operated systems for semi-automatic, full-automatic and time-clock control.

In the great variety of appliances used in connection with processing, which the Power Show will include, there is to be a display of safety heads, low pressure conservation valves, three-way switch valves for mounting dual safety devices, and others. This exhibit will illustrate how pressure vessels can be protected by rupture disc devices using a minimum of strategic materials, and how relief valves may be maintained in good condition by isolating them from corrosive chemicals. On some of these devices pressure equipment can be kept in operation even while a relief device is being renewed.

In the highly developed field of technical instruments, one exhibitor is to show a continuous pH recorder which continually and simultaneously registers pH at separate points in a process or treatment. An O₂ recorder, using no chemicals, automatically indicates the O₂ content of many gases, and is effectively employed for control purposes in power plants, steel mills, cement kilns, explosive plants, refineries, and other processing plants. To guide operators in holding down the corrosion factor in boiler feedwater, the same exhibitor will display a dissolved O₂ recorder, while for operators of high pressure steam systems a dissolved hydrogen recorder will be shown, whose purpose is to show H₂ liberated into steam by dissociation.

Stainless steel flexible tubing will be on view at another booth in the Exposition to illustrate applications for exhaust lines for tanks and armored cars, also filler necks, heater ducts, carburetor ducts, generator blast tubes, defroster tubing and heater exhaust tubes especially designed for aircraft.

Machine tools are being driven at top speeds, two and three-shifts, and without resting on the seventh day, and a number of exhibits point to means for

(Continued on page 178)



"I've found these STAR 'Moly'* High Speed Blades—hand or power—last just as long and cut even faster than other high speed blades they replace.

"Ten years ago, when Clemson brought out the first molybdenum alloy blade, it cost so much less that I thought it was just a 'cheap substitute'. It took the war to teach me I was wrong. Even after we've won this war, I'll be sticking to STAR 'Moly'* High Speed."

Today's STAR "Moly"** High Speed is far ahead in steel analysis and heat treatment. It's only logical that the company which developed the first molybdenum blade, and has been making them and improving them ever since, today makes the best—STAR "Moly"** High Speed, easy to recognize by its all-over metallic finish.

"TRAINEE TROUBLE"?

Then give those new apprentices this free 20-page STAR book of hack saw knowledge. It helps speed work, save blades.

Ask for "METAL CUTTING"

TRADE MARK
CLEMSON BROS.
INCORPORATED
MIDDLETOWN, N. Y.

*T. M. Reg.—Blades bearing name "Moly" are made only by Clemson Bros., Inc. and affiliated companies.

© 318

SCRAP SALVAGE is a LAW at GREENFIELD

SO ACUTE is America's metal shortage—particularly of high speed tool steel—that today the importance of scrap cannot be overemphasized.

Industry has a responsibility it cannot evade, not only to reduce scrap-making in plants, but to salvage it to the last ounce. Even the tungsten from filings and sludge must be recovered and turned back into productive channels.

The GREENFIELD TAP AND DIE CORPORATION has assured our Government that a rigid plan of salvaging is now in force in every department of its plants. Even displays, historical pieces, test and "useful after the war" items must go.

What "Greenfield" is doing, must be done by every factory and shop throughout the country. Failure to carry out a scrupulous system of salvaging can almost be viewed as actual sabotage!



GREENFIELD TAP AND DIE CORPORATION

GREENFIELD • MASSACHUSETTS

DETROIT PLANT: 5850 Second Boulevard

In Canada: GREENFIELD TAP AND DIE CORP. OF CANADA,
LTD., GALT, ONT.



GT&D GREENFIELD

TAPS • DIES • GAGES • TWIST DRILLS • REAMERS • SCREW PLATES

ON THE JOB Everywhere

"LENOX" *Diemaster*

Band Saw Blades

Hundreds of plants who use narrow Metal Cutting Band Saws are finding *Diemasters* the answer to their problem.

They are particularly designed for fast precision work on all contour sawing, die-cutting and similar operations and are adaptable for all types of die and band sawing machines.

100 foot coils packed in safety box—any length material can be drawn out and window shows unused portion of coil—size plainly marked on box end.

See your Distributor about "LENOX" *Diemaster* Blades today. Results will be satisfactory.



Buy

LENOX

"The Blade in
the Plaid Box"

AMERICAN SAW & MFG. CO.
Springfield, Mass.

(Continued from page 176)
keeping producing equipment going under heavy pressure. One such item is a new type graphite lubricant, especially designed to control overheating of lathe dead centres. Another exhibitor will offer a new power feed drill press making power feed available at extremely low first cost.

Still another manufacturer will display flexible shaft grinders with attachments for polishing, sanding and buffing, as well as portable electric drills—all of which are designed for easy adaptation to plant surroundings; special electrical facilities are avoided by the use of this equipment which can be plugged into the standard electrical outlets found in any plant. A manufacturer of grinders, sanders, hand saws and metal shapers, will feature a wet belt surfacing machine, claiming that this new method for handling many surfacing operations has been responsible for "an enormous cut" in manufacturing costs and for speeding up the war program.

One of the most important phases of the war effort is the rapid output of new designs, and the Power Show as usual will display a number of developments in this critical field. An exhibit of production prints, for example, will illustrate how it is possible to get big volume production in an extremely small floor area, and that black and white prints are much faster to make than blueprints. Another exhibit, devoted to drafting room equipment, will feature filing equipment made of wood, but designed to interlock with the now unobtainable steel equipment, and having most of the features which users have come to associate with steel furniture in this line.

Scales, packing, gaskets, electrical equipment, welding apparatus, power transmission material handling products will be itemized when more information concerning the forthcoming display can be released. There will also be a complete line of tools for various production and maintenance uses.

SOLVING WARTIME CHEMICAL PROBLEMS

Golwynne Chemicals Corporation of 420 Lexington Avenue, New York have a unique service for plants having "idle" inventories of essential chemicals. They also have located chemicals for war plants in need of such products.

Golwynne Chemicals Corporation have rendered a complete service in chemicals for all industrial purposes during the past 20 years and now more than ever are in a position to help the war effort by this two way service.

Ross Arnold, Purchasing Agent for the Sharon Works of the Westinghouse Electric & Mfg. Co., has been named Purchasing Agent of the company's U. S. Naval Ordnance Plant. He succeeds Jack Kelly, who becomes Assistant Purchasing Agent at the company's main office in East Pittsburgh, Penna.

Mass Production of Hose Clamps Speeded With

WITTEK
Automatic
ROLL FEEDS
FOR PUNCH PRESSES



Wittek Automatic Roll Feeds and Reel Stands are designed to fit all makes and sizes of punch presses and made in various types for every requirement in the automatic feeding of coiled strip stock.

In the all-out war production of Wittek Hose Clamps for aircraft, tanks, jeeps, trucks, and engines, the making of stampings from coiled strip stock is a major operation. To attain this mass production schedule, speed, accuracy and efficiency in feeding the metal to punch presses were essential. Wittek pioneered and developed the Wittek Automatic Roll Feed for that purpose. It has been proven on Wittek's and many other production lines, as the most important contributing factor for maintaining those present high production levels. Wittek Automatic Roll Feeds and Reel Stands are made available to other manufacturers who fabricate parts from coiled stock and demand speed and efficiency in their punch press operation. Write for catalog, prices and specifications.



Wittek Hose Clamps, for over twenty years identified with the Automotive and Aviation industries, are noted for their permanent leakproof hose connections. For original equipment and replacement.

WITTEK MANUFACTURING CO.
4305-15 W. 24th Pl., Chicago

IS THIS YOUR IDEA OF

PLATE GLASS?



Just something to look through?

That would be a perfectly natural reaction, because probably no other single product has contributed more than glass to the world's comfort and happiness. In addition to its other valuable properties, glass has the great advantage of being transparent . . . a characteristic that is of infinite importance to mankind. Can you imagine what the world would be like without the tremendous benefits of doors, windows and the thousand-and-one other normal uses of glass?

But the tremendous strides of science and research are rapidly completing a thrilling new chapter to the service of this product which

has meant so much to the world . . . giving it new and even more useful characteristics which greatly enlarge its utility for mankind.

Today, glass is doing double duty. In the form of bullet-resisting glass, precision glass for instruments, and as safety glass in bent shapes, it is serving our fighting forces on land, on sea, and in the air. At the same time, it is constantly serving business, industry, and the home by replacing other materials which are so essential to the prosecution of the war.

For instance, manufacturers of an ever-increasing variety of products are finding their answer to their priority problems in an ever-widening use

of glass. In many instances, Libbey·Owens·Ford Glass not only solves a product problem, but supplies advantages that make that product better, more serviceable and more salable. Some of the services today performed by glass were never dreamed of just a few short years ago.

Perhaps the physical characteristics of the many new types of Libbey·Owens·Ford Glass may open the way to an entirely new use of glass in *your* product. We will welcome the opportunity to explore with you the possibility of continuing your product with glass. Libbey·Owens·Ford Glass Company, 1391-A Nicholas Building, Toledo, Ohio.



LIBBEY·OWENS·FORD
QUALITY *Flat Glass* PRODUCTS

When writing Libbey-Owens-Ford Glass Company please mention Purchasing

Man Power Saved

For LIQUID CARBONIC CORP.



WITH
LONGER-LASTING
CAR-NA-VAR
TRADE MARK REG. U. S. PAT. OFF.
FLOOR TREATMENTS

"Only four applications annually," reports Chicago's famous Liquid Carbonic Corp. "give our floors a bright, non-slippery finish. Car-Na-Var treatments outwear ordinary waxes." Fewer applications annually mean valuable manpower saved for other important jobs.

While Car-Na-Var floor treatments cost a little more per gallon than most ordinary waxes, in the long run they not only save labor, but actually cut over-all material costs as well. Want proof? Ask for demonstration on your own floors.

FREE BOOK

A handy reference book for the maintenance man, giving the step-by-step treatment of every type of floor. Write for a copy today . . . no obligation.

Continental Car-Na-Var Corp.

1420 E. National Ave., Brazil, Ind.
World's Largest Makers of Heavy Duty
Floor Treatments

CAR-NA-VAR **CAR-NA-LAC** **CAR-NA-SEAL**

GENERAL ELECTRIC SALVAGES 100 TRAIN LOADS OF WASTE

By salvaging everything from outdated rubber stamps to an obsolete power plant, the General Electric Company will recover and return this year to war production 380 million pounds of waste material, enough to fill every car in 100 average freight trains, according to H. J. Beattie, head of the Company's salvage departments.

"At the present rate of accumulation our salvage departments this year will handle 5000 carloads of scrap," Mr. Beattie said.

To prevent excessive waste, however, designing engineers, draftsmen and methods men at each of the Company's plants constantly are developing new ways of reducing the amount of material necessary in manufacturing. Paralleling these efforts is the suggestion system, by which war workers suggest methods of increasing production, especially by conservation of vital materials. The Company has paid out approximately \$100,000 for more than 10,000 suggestions adopted so far this year. "All-Out War Production" committees formed at each of the plants are intensifying conservation efforts still further.

Manufacturing experts examine various types of electric apparatus, seeking the answers to such questions as these: Is this piece necessary? How could it be produced more quickly? If it is being made of a critical material, what substitute could we use?

Virtually all waste materials, however, have important applications in war production. Approximately 80 per cent of the total tonnage collected by the salvage department is steel scrap. Steel mills require equal amounts of such steel scrap and new pig iron in manufacturing the steel which goes into planes, tanks, ships and guns. Such other important metals as aluminum, tin, lead, copper, zinc, solder, brass and babbitt comprise 12% of the Company's scrap total by weight but account for 56% of the salvage value. Even waste paper, obtained chiefly from cartons, is an important item, for it is shipped to mills manufacturing boxes for cartridges. Approximately 30 carloads of paper will be salvaged this year.

General Electric's scrap yield will be swelled this year as a result of the Company's "treasure hunt" for war-scarce materials in conjunction with the nation's "Salvage for Victory" campaign. At one plant alone 2500 obsolete rubber stamps were turned in. At another an old power plant, no longer useful, yielded 27 carloads of scrap when it was dismantled. A third plant scrapped several carloads of obsolete dies and tools, some of which had been used 50 years ago by Frank Sprague, famed inventor and one of the pioneers of the Company.

This "treasure hunt" alone produced 200 carloads of scrap. Inspired by such slogans as "clean house to clean Hitler," employees made thorough searches of

(Continued on page 182)

WAR

BOLTS

NUTS

SCREWS

RIVETS

CLARK

The Name With Almost
a Century of Experience.

Time Tested

CLARK BROS BOLT CO.

MILLDALE, CONN.

PRODUCTION



REINFORCEMENTS

Top quality cutting tools are effectively reinforcing the production drive of industry's machine tool divisions.

MORSE

THERE IS A
DIFFERENCE

**TWIST DRILL AND
MACHINE COMPANY**
NEW BEDFORD, MASS., U.S.A.

NEW YORK STORE: 130 LAFAYETTE ST. - - - - - CHICAGO STORE: 570 WEST RANDOLPH ST.

When writing Morse Twist Drill and Machine Company please mention Purchasing

**WHY SHIPMENTS IN
GENERAL ALL-BOUNDS
match stepped-up
PRODUCTION**

1 AVAILABILITY

13 strategically located plants and offices blanketing industrial America! There is one near you — specially trained General Box men are ready and willing to help you solve your packing and shipping problems.



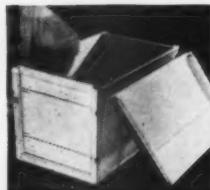
2 SAVE FLOOR SPACE



Here is maximum use of storage room space. General All-Bounds are "one-piece shocks." They store flat and take a fraction of the space necessary for made-up containers.

3 EASY, FAST ASSEMBLY

Even an inexperienced man can assemble a General All-Bound Box easily and quickly. It comes two-thirds assembled. No nails are used. Sides and ends are easily and securely joined. Sealed by Rock Fasteners, the General All-Bound has the strength of steel on all six faces.



4 EASY TO PACK and HANDLE



—provide adequate protection.

Mail coupon for the descriptive booklet.

**GENERAL BOX
COMPANY**

General Offices: 48 W. Illinois St., Chicago, Ill.
District Offices and Plants: Brooklyn, Cincinnati, Detroit, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, East St. Louis, Winchendon. Continental Box Co., Inc.: Dallas, Houston

Send a free copy of the booklet illustrating engineered shipping containers.
 Have a General Box engineer call.

Name

Address

City State

(Continued from page 180)

offices, tool rooms, laboratories, lockers and work stations for "dormant" scrap. Old fixtures, wiring, piping, conduits, crane equipment, and other machinery soon began to pour in for handling by the salvage department.

All of the scrap is transferred to the salvage departments where it is classified and sorted into 125 different classes, each of which is kept carefully segregated. Scrap is of the greatest possible use in war industry when it is kept clean and properly sorted.

To save time, an all-important war production factor, operation methods have been stepped up so that most materials are classified, processed, and readied for shipment within 24 hours of collection.

The salvage departments at the various plants are equipped with hydraulic baling presses, magnetic separators, chip crushers, torch cutting equipment, alligator shears, and all types of handling equipment such as cranes, industrial trucks, and conveyors. These facilities reduce scrap to convenient shipping shapes and facilitate handling in processing.

Several of the salvage departments have furnaces for refining lead, tin, babbitt and solders, distilleries and filters for reclaiming solvents and oils, laundry equipment to wash wiping cloths and canvas gloves, and wood-working equipment for salvaging lumber. At one plant the ashes from the incinerator plant are processed through a ball mill and then passed over water-fed vibrating tables, thus recovering tons of copper and steel and smaller amounts of tin, lead and silver annually.

IDEAL BLACKOUT FACTORY ENVISIONED

George H. A. Parkman, Westinghouse construction expert, recently wrote the recipe for the ideal war factory—a blackout, bomb-resistant, windowless building from which vital military machines and armaments would flow 24 hours a day, uninterrupted by air raids or sabotage.

Drawing on ingenious American technical achievements of the past decade, Mr. Parkman advocated the use of artificial daylight and precisely regulated temperature and humidity inside the arch-roofed super-factory to raise to a maximum the efficiency of men and machines.

A modern "failure-proof" system of factory power supply designed to localize damage from bombing, sabotage and other causes, would assure an unbroken flow of electricity to lathes, drills, welding sets and other equipment used to shape machines of war.

Cleanest Air

Two recent inventions would supply the cleanest air modern science can produce, protecting the health of workmen and guarding delicate machine parts against scratching. One of these, an electric air cleaner called the Precipitron,

(Continued on page 184)



Sign Up Your

**UNUSED
CAPACITY**

THERE it is—behind every filing mechanic—an unused capacity instantly ready for release. In test after test, Delta has proved it will do, on the average, 25% or more work in the same time and with the same effort. You'll quickly see the reason yourself in the chips, long, curling chips literally "shaved" from the metal. Give your Country your unused capacity! It's Delta for defense—secure them from your distributor.

DELTA FILE WORKS

Philadelphia, Pa.



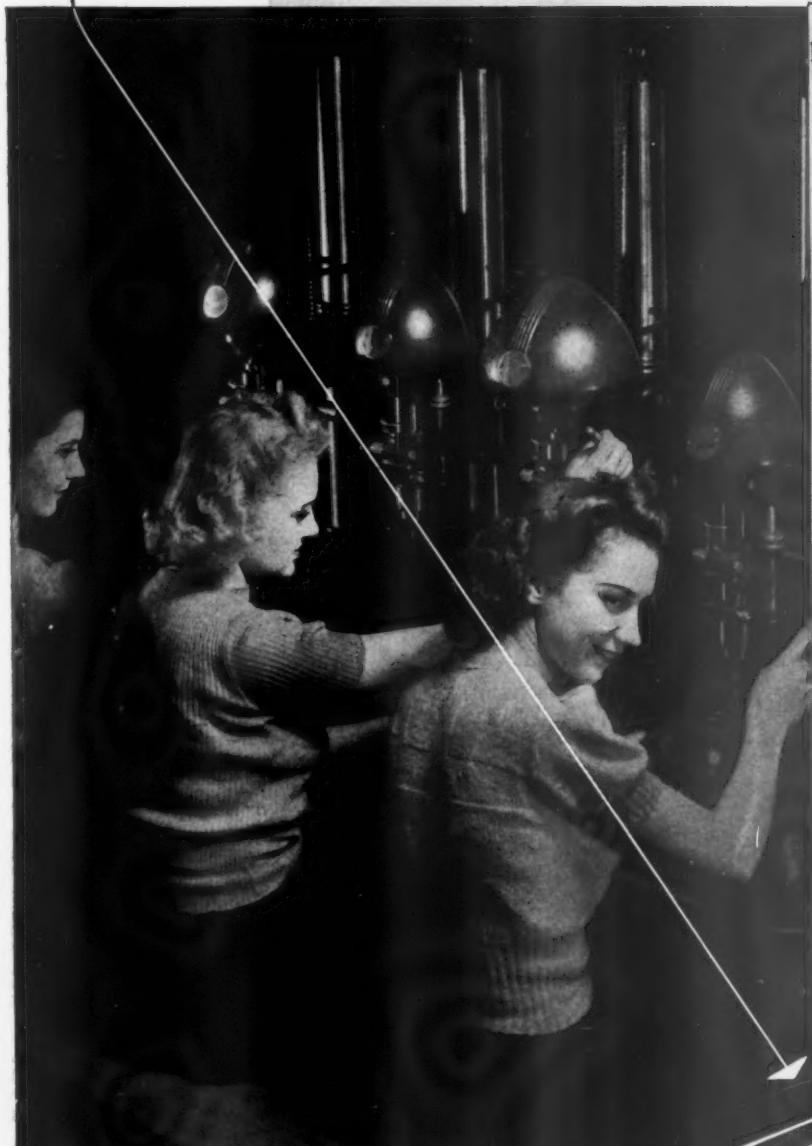
**DELTA
FILES**



THE NEW LABOR ARMY LIKES THESE MACHINES

These "minute women of '42" by the hundreds of thousands are setting a smooth fast pace on batteries of Delta low-cost Drill Presses, Grinders, Saws, and other Delta machines. A few months ago they didn't know the difference between a drill press and a punch press—a cut-off machine or cut-off switch. Now they are handling their machines like veterans and meeting production quotas with ease.

Management likes these machines too, because "breaking in" women and unskilled labor can be done in an unusually short time. Most important, skilled mechanics are released for more difficult work.



DELTA DESIGN

always offers these Advantages

Low First Cost

Low Maintenance Cost

Economical Operation

Reduced Labor Costs

Greater Flexibility

Portability



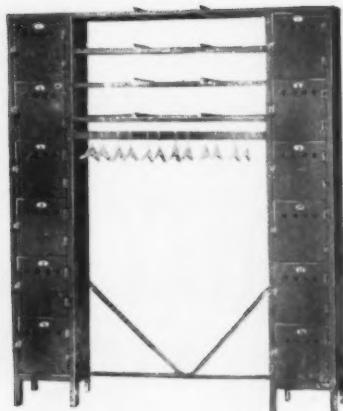
SEND FOR "TOOLING TIPS"



showing how other manufacturers are taking advantage of the many features of DELTA-Milwaukee machines; also for latest complete catalog. Get in touch with your Delta Industrial Distributor or write to The Delta Manufacturing Company, 642-M E. Vienna Ave., Milwaukee, Wis.

The Complete DELTA-Milwaukee line consists of low-cost, high-quality Drill Presses, Cut-Off Machines, Grinders, Abrasive Finishing Machines, Saws, Lathes, Jointers and Shapers.

When writing The Delta Manufacturing Company please mention Purchasing



NOW AVAILABLE

SPACE SAVING

These modern Peterson Locker Racks double locker room capacity . . . save valuable space for productive use. 3 ft. single unit accommodates 12 employees (double back-to-back unit accommodates 24.) Provides each employee with individual coat hanger, individualized hat space on ventilated shelf and individual 12" x 12" x 12" lock box for lunch, micrometers, drawing instruments and personal effects.

Peterson Industrial Wardrobe Racks (without lock boxes) accommodate 4 persons per running ft., come in lengths to fit in anywhere . . . usually near point of work to eliminate needless to the locker room traffic and locker room stalling.

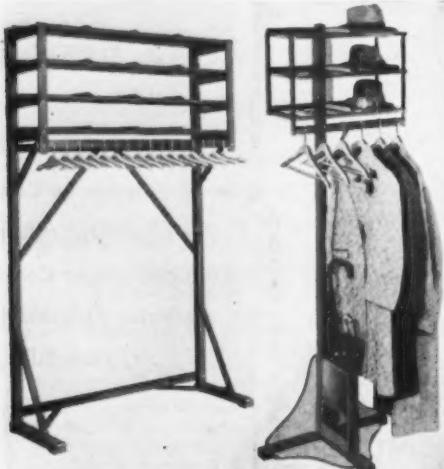
SANITARY

PETTERSON Industrial Wardrobe Equipment not only saves space, it keeps employees wraps "in press" — open to light and air. How much better for employee morale, in cold stormy weather, to start home in dry clothing rather than in crumpled, wet garments that have been crushed all day in a damp locker . . . to eat a dry lunch rather than one that has gotten soggy under a wet hat.

For Both Shop and Office

The new racks are provided for the office too as Office Valet Racks that come in any length by the foot (accommodate 3 persons per running foot, provide coat hangers, hat shelves, overshoe base shelf and umbrella stand) or in modern non-tipping customers (accommodate 6 or 12 persons). They are finished in walnut brown or olive green.

Write for Catalog Sheet and Prices



VOGEL-PETERSON CO.

"The Checkroom People"
1840 N. Wolcott Ave. Chicago, U. S. A.

(Continued from page 182)

would bar the entrance of air-borne dirt, dust and smoke. The other, the Sterilamp, would stand guard in air ducts, killing bacteria with its invisible ultraviolet rays.

Although this blackout super-factory would be adequate for the manufacture of almost any type of war equipment, its advantages are so great they would carry over into peacetime factory construction, inaugurating a new era in improved industrial working conditions.

Many of these engineering advances have already been incorporated in factories constructed in the past year, but no factory has yet been built to take full advantage of all these recent developments. Increased comfort of workmen and protection of health in such a factory would improve morale, and speed production by reducing lost time due to illness.

Concrete "Egg-Shell" Construction

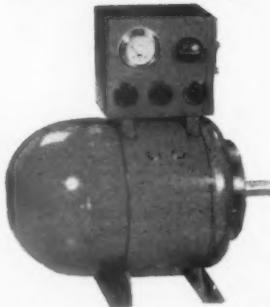
The building would be made of reinforced concrete, with an arched "egg-shell" type roof, to save time and steel and to provide a structure that would

(Continued on page 186)



A C and D C GENERATORS

1,000-5,000 WATTS.
PROMPT DELIVERIES.
BUILT TO FIT YOUR NEEDS.



17 years specialized experience in manufacturing electrical generators of all types. Send us your specifications and let us quote you.

WIND POWER MFG. CO.

Since 1925 DEPT. B, NEWTON, IOWA



HOW MANY TOWELS PER WORKER IN YOUR PLANT?



Stop Waste . . . Save Money!

STRAUBEL
Texturized
TRADE-MARK
TOWELS

Made from long fibre paper and specially processed, Straubel Texturized Towels absorb more water, do it faster, and leave no fuzz on the skin. Try this better towel yourself—write for free testing samples today!

Straubel
PAPER COMPANY
GREEN BAY, WISCONSIN



"Pacific Coast Sales and Distributing Organization with Warehousing Facilities in key cities desirous of supplementing present products in use by aircraft industries. Able to finance all transactions if so required. Background and responsibility guaranteed and particulars available at proper time." Box #937 Purchasing, 205 East 42nd St., New York, N. Y.

MAKE YOUR MACHINERY STAND UP UNDER WARTIME STRAINS

MORE-JONES
BRASS & METAL CO'S. - REX-

KEEP all bearings in good shape.
Reduce the danger of breakdowns by
lining your bearings with the highly anti-frictional

N-B-M "REX" BABBITT METAL

It contains 12% tin -- the highest tin content now
generally permitted by government regulations.

PHYSICAL PROPERTIES

Tensile strength (lbs. per sq. in.)	8,200
% Elongation in 2"	1.2
Red in area %	1.8
Compressive strength (lbs. per sq. in.)	17,500
Specific gravity	9.60
Brinell hardness	25.0
Proper pouring temperature Drg. F.	625°-675°

Properly applied, "Rex" will help you keep your machinery
going a long time. Write for helpful re-babbitting chart.

NATIONAL BEARING
METALS CORPORATION



ST. LOUIS • NEW YORK

PLANTS IN: ST. LOUIS, MO. • PITTSBURGH, PA. • MEADVILLE, PA. • JERSEY CITY, N.J. • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

When writing National Bearing Metals Corporation please mention Purchasing

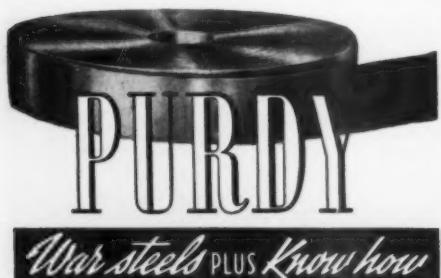


PURDY looks at steel products from the point of view of the men who have to "put them together" in the manufacture of fighting equipment. When ordinary methods or standard procedures can't get jobs done, Purdy men are ready to help "tear 'em apart," analyze the problem from a production standpoint, and recommend materials and methods that *work* — and the complete PLANET line of Spring Steels, Tool Steels, Drill Rod and Cold Drawn Steels is here to help them.

HOW PURDY'S KNOW-HOW SOLVED ONE PROBLEM:

A manufacturer, unable to get shim steel to finish urgently needed dies, put in a call to Purdy. Purdy men suggested using PLANET Blue Tempered Spring Steel as a substitute. It worked — and the dies went out *on time*! Whatever your Victory product, whatever its problem: in steel supply or application, or something demanding *extra* ingenuity in using steel — call on Purdy for quick service.

A. R. PURDY CO., INC.
792 Greenwich St., New York, N. Y.



(Continued from page 184)
suffer least from bombing, sabotage and fire.

Although parts of the arched roof might be no thicker than three or four inches, the structure would not lack strength, because it would have the same general shape as an egg shell.

This concrete construction costs about the same as steel frame construction, but requires only about forty per cent as much steel, a vital war material. Explosions from bombing or sabotage would cause only local damage, easily repaired.

One of these concrete "egg-shell" factories is now nearing completion at a Westinghouse plant.

"Failure-Proof" Power Supply

To maintain an uninterrupted flow of power to the machines of the blackout war factory, use of a new "failure-proof" factory power network was recommended. This power system, which has been installed by Westinghouse in numerous defense plants in the United States in the past year, has many supply lines running throughout a factory in a loop or a criss-cross pattern. It is known as an alternating current, secondary-network system.

Damage to one section of the factory will not interrupt the flow of electricity to other parts. The scattering of transformers and protective switches throughout the factory greatly lessens the danger of complete power blackout from a short circuit, bombing or sabotage. Also,

This  is where
Yehudi lives

● It's the thermostatic control on our oil-fired kettles . . . and it maintains constant temperatures in the all-important zinc bath.

It's just one of the aids to human skill that speed our work and insure its uniform quality. It's another reason why Enterprise Galvanizing Company can be depended upon to meet the most exacting specifications.

ENTERPRISE
GALVANIZING
COMPANY

2519 E. CUMBERLAND ST., PHILA., PA.

"To Economize — Galvanize
at Enterprise!"

When writing advertisers please mention Purchasing

Get Both!

1: a BETTER SHOVEL



2: and BETTER WAYS TO USE IT

New manual clearly pictures how men can dig and move material faster and easier — save time, money, man-power. Order copies free, for distribution and posting in plants.

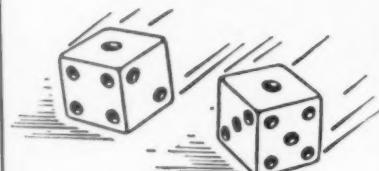
THE UNION FORK & HOE COMPANY
593 Dublin Avenue
Columbus, Ohio



RAZOR-BACK

Only Shovel with a BACKBONE

YOU DO NOT GAMBLE



When you order
SPARTAN
Hack & Band Saws



Sold by Leading
Distributors Everywhere
Spartan Saw Works, Inc.
Springfield, Mass.

FLOORS CLEANED Best with PERMAG



Section of a Greasepit floor, in a Massachusetts street railways company's garage, cleaned with PERMAG. They have used PERMAG Compounds for 5 years.

PERMAG — are used on **COMPOUNDS** Concrete and Wood Floors, Rubber and Linoleum Flooring and all types of painted surfaces. PERMAG is economical; it cleans fast and effectively. Used in industrial plants everywhere.

PERMAG Hand Cleaner

in powdered or liquid form. Used in offices and factories. Harmless to skin. Odorless. Magnuson Cooperative Service will help solve your cleaning problems. Write us.

MAGNUSON PRODUCTS CORPORATION

Mrs. of Specialized Scientific Cleaning Compounds for Industries. Main Office: 50 Court St., Brooklyn, N. Y. Representatives also. Warehouses in principal cities. In Canada: Canadian Permag Products Ltd., Montreal, Toronto.

Unintentional Sabotage

can be avoided if you mark your war materials with Paintcil.

This material—handy as a pencil to use—applies marks that "stay put"—won't come off in sun or sleet. No confusion, no "explaining", no wondering about any materials' identity.

Even newest "hands" can use Paintcil expertly at once—and as quickly as they can write. Economical. White and many colors. Insist on genuine

PAINTCIL

—paint in stick form. Write or wire for actual samples. No obligation.

HELMER-STALEY, INC.
327 WEST HURON STREET
CHICAGO, ILLINOIS

this system is easier to repair and enlarge for factory expansions, because a small section of the system can be switched off while the remainder continues to supply power to machines.

Artificial Daylight

In a windowless and hence permanently blacked-out plant, lighting will be important because no daylight will enter and all work, 24 hours a day, must be done under artificial light.

Fluorescent lamps are favorites for such factory lighting because they produce more than twice as much light as incandescent lamps from the same amount of electricity. Also, they give off less heat, and can produce light of a color that nearly duplicates daylight. Proper use of fluorescent lighting can increase production, because people can work better and feel more like working if given sufficient light.

Treated Air

Air conditioning is essential in a windowless plant to provide fresh air for workers to breathe, remove factory fumes and regulate temperature and humidity.

Proper temperature control, through air conditioning, permits employees to work faster in comfort. To eliminate stale air and prevent a feeling of laziness and loss of appetite, it is necessary to supply new outdoor air at the rate of 15 to 30 cubic feet a minute for each occupant of the factory.

(Continued on page 188)

ALWAYS Dependable

Since 1880

You can depend on GRIFFIN Band Saws. The same high performance and long lasting qualities that have made GRIFFIN Hack Saw Blades the favorite of many thousands are incorporated in GRIFFIN Band Saws . . . they're backed by over 62 years of specialized manufacturing experience.

INSIST ON GRIFFIN

from your distributor

JOHN H. GRAHAM & CO. INC.
General Sales Agent

105 Duane Street New York City
Made by G. W. GRIFFIN CO., Franklin, N. H.

GRIFFIN BAND SAWS



Protect Your Chains

Insure Safety of men—conserve steel—add years of chain service.

1—Clean chains regularly. Don't let dirt, rust or grit put their fingers on your chains.

2—Inspect chain regularly.

3—Avoid kinks and knots. Protect chain at load corners and edges.

4—Don't overload. Follow SAFE WORKING LOAD ratings.

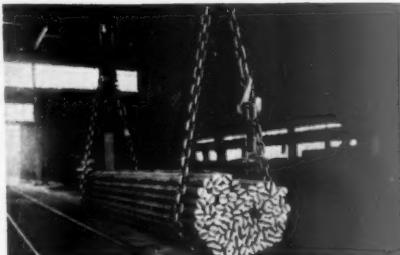
5—Be sure load is balanced.

6—Take up slack slowly.

7—Lower loads slowly.

8—Protect stored chains. Do not leave chains on ground or exposed to weather.

TAYLOR-MADE CHAINS



Toughest material, Taylor Heat Treatment, Taylor Electric Welding and Taylor Design mean Dependability. Note bulge inside both sides of links of Taylor-Made Alloy Sling Chain above—for greater strength.

Taylor-Made line includes chains for every load, pull, or use. Send for complete catalog.

Established 1873

S.G. TAYLOR CHAIN CO.
Box 509-P Hammond, Indiana



Independent laboratory tests of Booth mechanical felt parts are surprising design engineers as to the ability of felt to serve better in scores of aircraft and machine applications.

Booth "prescription" felts are made to fit the task . . . with ingredients "compounded" to give the exact end properties desired in the precision-cut parts. It may pay you to know the properties and savings obtainable. Write for the Booth condensed textbook, "The Technique of Felt Making." The modern felt technology described, may be a revelation to you.

THE BOOTH FELT COMPANY
485 19th Street, Brooklyn, N.Y.
749 Sherman Street, Chicago, Illinois

ALSO . . . COMBINATION APPLICATION CHART AND SAMPLE FILE

... yours for the asking. Standard file size. Contains actual swatches of S.A.E. felt types, with complete specification tables. No obligation . . . no sales follow-up.

1909



(Continued from page 187)

Experiments in blackout plants built this year have shown Westinghouse engineers that the best way to air condition such a factory is by a number of small cooling units located in various sections of the building. Damage to one unit would not affect the operation of all others.

Electrical Blitz for Dirt

To add further to the health and comfort of workers in the ideal blackout factory, Mr. Parkman advocated installation of two devices in air ducts. One of these, the Precipitron, uses 12,000-volt electricity to catch and hold 90 per cent of all air-borne dust, dirt and smoke particles.

Lamp research engineers have found that ninety-five per cent of air-borne disease germs in air entering a factory can be killed by the ultraviolet light from Sterilamps. It is believed that such cleaning of factory air reduces a worker's danger of contracting communicable diseases.

ARMSTRONG-BRAY
STEELGRIP
FLEXIBLE BELT LACING



Prompt
Delivery!

—on both standard types of belt lacing.

STEELGRIP is applied with a hammer that penetrates belting easily and clinches securely to make a strong, flexible, smooth joint. 2-piece hinged rocker pins take up wear. In boxes or long lengths for wide belts, it compresses belt ends and prevents fraying. 8 sizes.

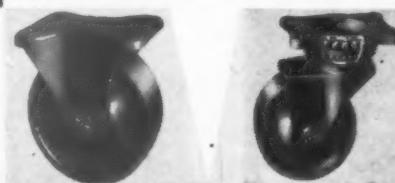
ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5378 Northwest Highway
Chicago, U.S.A.



BELT
HOOKS

Applied with any standard make lacing machine, these belt hooks come on double (patented) aligning cards that hold hooks in perfect alignment and prevent card end waste. 6 sizes.

speed production



DARNELL
CASTERS & WHEELS



DARNELL CORP. LTD.,
LONG BEACH, CALIFORNIA,
60 WALKER ST., NEW YORK, N.Y.
36 N. CLINTON, CHICAGO, ILL.

**CHOICE OF THE
PLANE MAKERS**

FORTRESS, WARHAWK, MITCHELL,
MUSTANG, VALIANT, LIGHTNING,
HELLDIVER, HARVARD, COMMANDO,
VENTURA, VANGUARD, CLIPPER,
HUDSON

These, and more . . . in the sky because hundreds of thousands of aircraft workers keep their hands productive with PAX Safety Skin Cleaners.

PAX

2040 Walnut, Dept. C, St. Louis, Mo.

When writing advertisers please mention Purchasing

Investigating NE Steels? Here's new, helpful data for you!

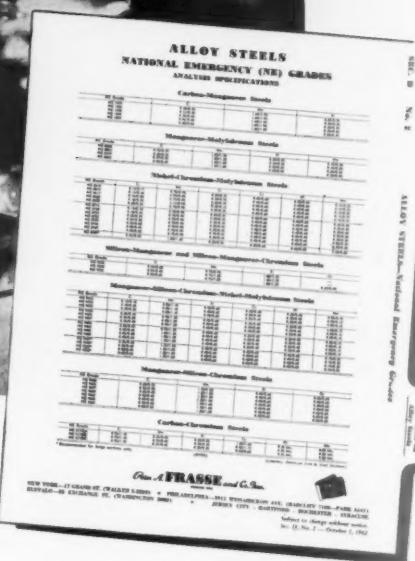


Already adopted in many war plants, NE steels will be increasingly used to substitute for standard alloy grades. If you are now testing or contemplating the use of NE steels, you'll find this new Frasse chart a handy guide.

Latest of the Frasse Data File series, it shows a complete list of recently revised NE analysis "specs," plus recommended alternatives for standard alloy steels. Both standard and NE grades are grouped, for convenience, according to approximate hardening values.

The chart is regular file size—just right for

desk or wall, too. There's no charge—just mail the coupon below. Meanwhile, if you have a specific question regarding the use of these new grades, write or call Peter A. Frasse and Co., Inc., 17 Grand Street, New York, N. Y. (Walker 5-2200). 3911 Wissahickon Avenue, Philadelphia (Radcliff 7100—Park 5541). 50 Exchange Street, Buffalo (Washington 2000). Jersey City, Hartford, Rochester, Syracuse.



FRASSE Mechanical STEELS

SEAMLESS STEEL TUBING
COLD FINISHED BARS
ALLOY STEELS • DRILL ROD
STAINLESS STEELS
COLD ROLLED STRIP AND SHEETS
WELDED STEEL TUBING

PETER A. FRASSE AND CO., INC.
 Grand Street at 6th Avenue, N. Y. C.

Please send me a free copy of your chart Sec. D, No. 2, showing NE "specs" and recommended alternates.

NAME _____

FIRM _____

ADDRESS _____



SPEED the flow of war production with Bond Truck Casters! *Specialized* experience builds special advantages into these sturdy, smooth rolling casters. **For Bond builds industrial truck casters only...and they're built-for-the-job.** Write for free Bond Data Book.

BOND FOUNDRY & MACHINE CO., MANHEIM, PA.

BOND 36-A CASTER. Basically different in design, this caster combines easy swiveling with long service. The "reason why" lies in the arrangement of its ball races and its use of durable Bond Caster metal. Pressure lubricated throughout.



MANUAL OF PLANT PROTECTION

Newspaper headlines describing audacious plots by enemy saboteurs to cripple industrial production have focused public attention sharply on the necessity for more adequate policing of American factories.

Rightly so! — For thousands of industrial plants fighting on the production front, the planned, scientific protection of vital facilities and personnel is as important a consideration as protection for the army in the field. "Plant Protection", the first comprehensive manual of industrial police technique to state the problems and suggest the answers was published last week by the Cornell Maritime Press, 350 West 23rd St., New York City.

Written by E. A. Schurman, Chief of Protection for the great Glen L. Martin aircraft plants, "PLANT PROTECTION" fully describes the establishment, reorganization and conduct of the modern plant protection department, and also serves as a practical guide for the man on the job. Well illustrated, with reproductions of important office and control forms; 146 pages—Price, \$2.00.

The author, who spent many years with the U. S. Secret Service in charge of the force responsible for the protection of plants manufacturing the vast sums in currency and securities handled by the government, is acutely aware of war-time pressures and problems. The manual is designed as a guide for the man who must immediately institute adequate security measures against spies and saboteurs. It contains an organization structure and operations plan suitable for a force of any size, which can be widely extended for an increased staff, or, by simple modifications, be applied in a very small organization. It then takes up routine procedures, equipment and methods. Valuable chapters are included dealing with self-control and self-defense, fire hazards, and espionage and sabotage.

↑ ↑ ↑

R. C. Hensel, formerly of the Tulsa Purchasing Department of the Shell Oil Company, has been transferred to the New York Purchasing Office of the company.

WIPING CLOTHS CHEESECLOTHS.
AND TOWELS TO LICK ANY
CLEANING JOB YOU'VE GOT!

Every cleaning job requires a special wiping cloth. BURCOTT's selection of wipers and towels includes the exact wiper you need. Not just cheap wiping rags to use once and throw away, but soft absorbent top-quality materials that can be laundered and used over and over again.

Discover the economies of BURCOTT specialized wipers used by war industries all over America. Check and compare the value in BURCOTT'S big selection of factory and hand towels. See and feel these advantages for yourself, and then you'll know why so many important factories depend upon BURCOTT wiping cloths.

Send for FREE samples and prices of the wipers or towels you need — no agent will call.

BURCOTT MILLS
622-A1 West Fulton Street Chicago, Ill.



ON ACTIVE DUTY ON A THOUSAND FRONTS

Let Dayton grinding wheels help maintain war production in your plant. Built in all types, sizes, grains, bonds, and grades to exact specifications. Try Dayton wheels and you've found a dependable source of supply. Simonds Worden White Co., Dayton, Ohio

DAYTON GRINDING WHEELS



It Pays You to "Keep 'Em Working," Too

**No Acid-Crippled Work Hands
if they wear Stanzoils
of DuPont NEOPRENE**

Casualties on the production front also hold back the Victory. Keep the hands of your men and women employees safe and busy—protect them from oil, acid and caustic injury with these Stanzoils of neoprene that resist damage from such materials. Stanzoils often last 3 to 7 times longer than rubber gloves, saving expense. Made in 6 sizes and weights, black and white, to meet all needs. Keep hands at work, avoid costly liability claims —ask your Jobber for Stanzoils or write us for current delivery data.

Synthetic Rubber Division of
THE PIONEER RUBBER CO.
257 Tiffin Rd., Willard, O., U.S.A.
New York • Los Angeles
MADE WITH DU PONT NEOPRENE

*HALL MARK OF *Strength*

*That letter "C" on the head of Cleveland 1035 heat treated hexagon head cap screws is your guarantee of the greatest tensile strength to be found in any regular stock screw.

THE CLEVELAND CAP SCREW CO., 2917 EAST 79th STREET, CLEVELAND, OHIO



BY THE BOX, OR BY THE MILLION...BUY

CLEVELAND CAP SCREWS

SET SCREWS • BOLTS AND NUTS

Address the Factory or our Nearest Warehouse: Chicago, 726 W. Washington Blvd. • Philadelphia, 12th & Olive Streets
New York, 47 Murray Street • Los Angeles, 1015 E. 16th Street

When writing The Cleveland Cap Screw Co. please mention Purchasing

You Want More Man Hours?

... see that fresh, clean Ajax Paper Cups—in dust-tight steel or plastic dispensers—are supplied at all your drinking fountains. It's a courtesy service that promotes health, for these inexpensive cups are used *once only*, decreasing the spread of common colds.

LOGAN DRINKING CUP CO., 68 Prescott Street, Worcester, Mass. • PACIFIC COAST ENVELOPE CO., 416 Second Street, San Francisco, California U. S. ENVELOPE CO., Los Angeles Division, 2828 East Twelfth Street, Los Angeles, California.

Divisions of United States Envelope Company



Sample cups and information regarding wall dispensers and the new Ajax Mobile Water Service sent on request. Address Dept. 11-P at the plant nearest you.

AJAX CUPS

Any drinking fountain can easily be equipped so that AJAJX cups can be used

CHAMBERLAIN NAMED JENKINS SALES MANAGER



C. C. CHAMBERLAIN

Charles C. Chamberlain has been named as general sales manager of Jenkins Bros., Bridgeport manufacturers of valves and other products, according to announcement by Farnham Yardley, president of the company. Mr. Chamberlain has been publicity manager of Jenkins Bros. since 1940. Mr. Yardley's announcement followed a meeting of the board of directors of the company.

Mr. Chamberlain came to Jenkins Bros. in 1929, on graduation from Hamilton College. Starting as an assistant in the advertising department he was appointed advertising manager in 1932, and advanced to publicity manager in 1940. A native of Malone, New York, he resides in Pleasantville, N. Y.

The new general sales manager will make his headquarters at the general offices of the company, 80 White Street, New York City.

1 1 1

F. H. Miller, Jr., has been appointed Purchasing Agent for the Denning Mfg. Co., Cleveland, succeeding E. E. Ojala.

TAPS AVAILABLE

59 pcs. — 1/4-26 BSF 2 fluted Morse taps #2046 @ \$1.45 net each; also 49 pcs. of 1/4-26 BSF 4 fluted Bottoming taps #1040 @ \$.45 each, less 35% — suitable for use in the manufacture of British nuts.

Write

CONTINENTAL SCREW COMPANY
New Bedford, Mass.

WANTED:

Steel shelving approximately 7'3" x 42" x 18" or 7'3" x 30" x 24". Write full description. Box No. 939, PURCHASING, 205 East 42nd Street, New York, N. Y.

ALLEN FLUX

A solder that

REQUIRES NO PRIORITY

FLOWS—EASILY ALLEN SILOY

Send for free samples

L. B. ALLEN CO., Inc.

6712 Bryn Mawr Ave., Chicago

ILLINOIS 5-3555

MAILING BAGS

Makes Easy
Mailing of
Hard-to-Wrap
little things



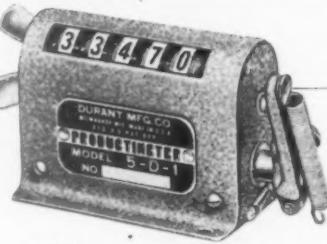
All Sizes
All Kinds
FABRIC BAGS
with and without
TAGS or ENVELOPES

Bulky packages cost more.
Avoid unnecessary expense
and trouble by using sturdy
Chase Mailing Bags. For nuts,
bolts, spare parts, samples,
odd shaped articles. Eliminate
"under separate cover"!

Write for prices!

CHASE BAG CO.

302 EAST PITTSBURGH AVE.
MILWAUKEE, WIS.
One of thirteen great factories



Materials...
Machines...
Men...and...

PRODUCTIMETERS

Four essentials united...with tremendous driving power...to produce in never before achieved quantities, to win the Victory on the production front.

Productimeters automatically record machine production...strokes or revolutions...measure lineal feet or yards...set machines for making precision tools. They are designed for speed and accuracy...constructed for hard usage...they'll save you precious time and man-hours.

Every purchasing department should have Productimeter literature on file.

Catalog and prices on request!

DURANT MFG. CO.

1959 N. Buffum St.
Milwaukee, Wis.
159 Eddy St.
Providence, R. I.

Save CRITICAL METALS
by using
IRON BODY VALVES



Fig. 190



Fig. 241

**Switch to POWELL Iron Body
Valves wherever possible**

Not so long ago many buyers and users of valves automatically thought of bronze. It was accepted as the standard for many installations . . . apparently the impression existed that the desired service could not be obtained if any other metal were used.

But—that was before Pearl Harbor!

Today, with copper and tin high up on the critical metals list, the use of the more available metal becomes urgent. Research and recent experience have proven that iron valves—especially properly designed and sturdily built POWELL Iron Valves—will, in many instances, serve just as effectively as bronze valves.

Therefore, when you specify POWELL Iron Valves you not only render a patriotic service by helping to conserve the now critical copper and tin, but you can expect quicker delivery because of the lower priority rating required. And—you'll have **EXTRA SAVINGS TO INVEST IN WAR BONDS.**

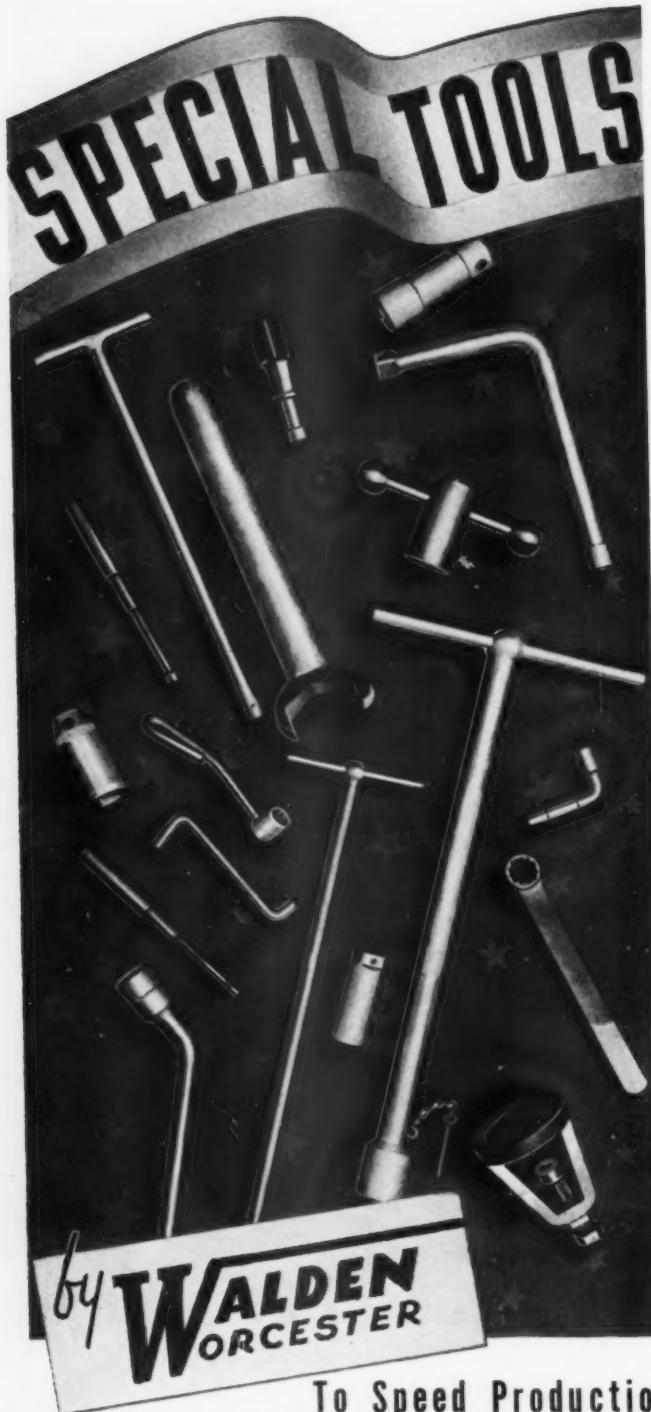
The Wm. Powell Company
Dependable Valves since 1846
Cincinnati, Ohio

Fig. 190—Iron Body, Bronze Mounted "Irenew" Globe Valve for 150 pounds W. S. P. Has screwed ends, Union bonnet and regrindable, renewable hard bronze seat and disc. Available in sizes from $\frac{1}{4}$ " to 3", inclusive.

Fig. 241—Iron Body, Bronze Mounted, Standard "Model Star" O. S. & Y. Globe Valve, with flanged ends, outside screw rising stem, bolted flanged yoke and regrindable, renewable bronze seat and disc. Made in sizes from 2" to 12", inclusive, for 125 pounds W. S. P.

POWELL VALVES

When writing The Wm. Powell Company please mention Purchasing



To Speed Production
Facilitate Maintenance or Repair

Here are a few representative answers to individual problems . . . solved by Walden Worcester. Where our standard sockets, wrenches and tools did not meet the particular requirement these were specially designed to do the job, quickly and efficiently. Our experienced engineering staff stands ready to serve you . . . to help you lick that special tool problem . . . backed by a plant with over 36 years experience in "Knowing how". Send us a print . . . or tell us your problem . . . Let us get to work on it. No obligation, of course.

STEVENS WALDEN, INC.
472 SHREWSBURY STREET
WORCESTER, MASS.



When writing advertisers please mention Purchasing

PURCHASING POST-MORTEMS

(Continued from page 79)

house came in, tall, white-bearded, immaculate, looking like ready money all over he found his dried fruit buyer hanging to the door-knob of the private office. Facing bravely the Big Boss, he told his sad story.

The old gentleman listened without comment. The tale unfolded, he looked at the young man:

"Mr. Burgess, I suppose you had good reason for thinking the prune market was going to advance sharply?"

"Yes, sir."

"How did you reach this conclusion?"

"I made inquiries among the brokers and importers and cabled every authority accessible to us on the other side. Then I talked with the older department heads and laid my conclusions before Mr. Fergus."

"And he approved your purchases?" The old fox knew all about it beforehand, and had passed on the whole transaction himself.

"He did, sir."

"Then, Mr. Burgess, you seem to have done everything possible to make sure of your position and safeguard the house; and on the information you had, in your place I should probably have done the same thing. You have nothing to regret. That will be all, Mr. Burgess."

Of course, Burgess took a handsome licking on his purchase, and he fairly wallowed in prunes for a year before he got his stock back to normal; but he did learn something about the hazards of operating with other people's money. His courage was good. If he saw a

(Continued on page 196)

50,000 CULLMAN SPROCKETS IN STOCK

Quick delivery from stock can be made on more than 2,000 types and dimensions of Cullman Sprockets. Because of specialized experience and equipment, special sprockets can be made to order promptly and at a comparatively low cost.

The Cullman catalog lists sprockets and chains carried in stock, and gives information and tables of value to sprocket users. Write for your copy.

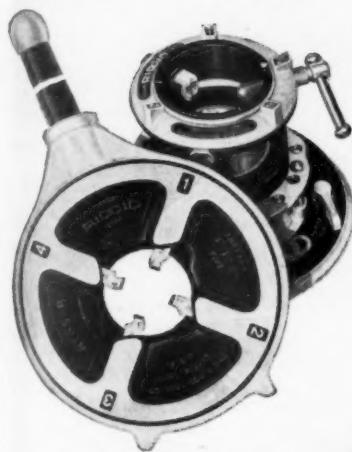
CULLMAN WHEEL CO.
1352-P ALTGELD STREET, CHICAGO, ILLINOIS

You Thread Sizes of Pipe with set of Chaser Dies



...and this

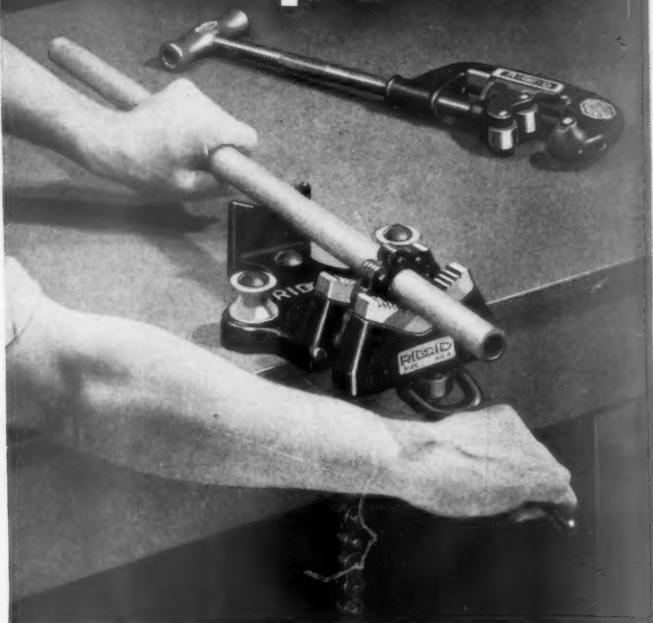
RIDGID No. 65R
sets to size in only
10 Seconds!



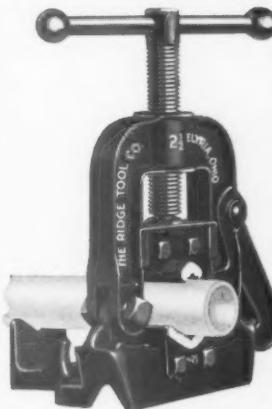
- Save time, save effort, cut costs and cut better threads! These are important to you now—and in the future. You get them with this speedy modern threader—self-contained, it gives you quick perfect threads easily on any 1" to 2" pipe, any thread variation—changes size in 10 seconds. Mistake-proof workholder sets to pipe instantly, one screw to tighten, *no bushings*. High-speed steel chaser dies, rugged steel and malleable construction. It's a delay-killer—see it at your Supply House.

All RIDGID Pipe Tools are sold through Supply Houses

The RIDGID Pipe Vise



...that uses less critical metal but gives you more work-saver features



RIDGID Yoke Bench Vise.
Comes in 8 sizes, capacities $\frac{1}{8}$ " to 6". Yoke vises also in kit, stand, tri-stand and post models.

- This streamlined pipe vise meets today's need to save metal and save time. The 6" bench chain vise weighs 60% less than a 6" yoke bench vise. Speedy to use—flip the chain over any pipe up to 6", tighten screw handle. Firm grip, with integral support to hold pipe solid for easier cutting or threading. Handy pipe bender. Strong malleable frame, highest quality tool steel jaws, scientifically hardened for long wear. Five sizes, capacities to 8". Chain vises also in post, stand and tri-stand models. Ask your Supply House.

RIDGID

Pipe Wrenches, Cutters, Threaders, Vises

THE RIDGE TOOL COMPANY
ELYRIA, OHIO, U.S.A.

Work-Saver Tools for America's Big Job in 1942

When writing The Ridge Tool Company please mention Purchasing

STANLEY "FLUD-LITE" MAGNIFIERS



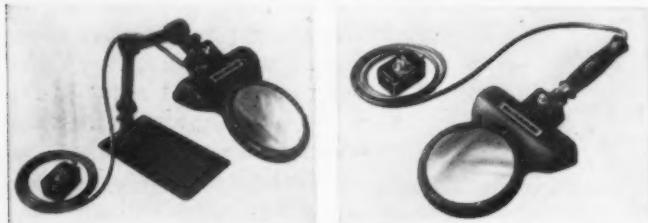
- ★ Floodlights the work area with glare-free fluorescent light.
- ★ Magnification prevents eye-strain and lessens worker fatigue.
- ★ Saves man-hours, speeds production.
- ★ Reveals the finest details.

SPEED UP INSPECTION ... ASSEMBLIES

With Stanley "Flud-Lite" Magnifiers, a flood of "natural" light on the work, plus the high quality magnifying lens, increases the "eye efficiency" of inspectors, assemblers, machinists, toolmakers. The tiniest cracks, scratches, and other flaws in machined parts are quickly revealed. Reamers, gauges, punches, dies, etc., can be checked at a glance.

THE FLUORESCENT DAYLIGHT LAMP ...

illuminates every detail of the work with shadow-free brilliance. It generates little heat, and its current consumption is very low. Operates from any 110-120 volt A.C. outlet.



No. 701, bench type, has swivel joints for adjustment to any desired position. Base is removable to allow permanent attachment in any location.

Ask your Stanley Distributor about "Flud-Lite" Magnifiers. Literature sent on request. Stanley Electric Tool Division, The Stanley Works, New Britain, Conn.

No. 701H, portable type, permits inspection anywhere in the plant. Fitted with a comfortable grip, hardwood handle and six feet of approved cable.



STANLEY ELECTRIC TOOLS

When writing advertisers please mention Purchasing

(Continued from page 194)

good chance for a gamble he took it, and mostly won out. But he was mighty careful to dig down deep for all the facts before he gambled; and when he retired, full of years, if not of prunes, to take up golf, the house treated him pretty handsomely.

No Perfect Batting Averages

If every Purchasing Agent were infallible, the commercial world wouldn't be fit to live in. The mistakes we make, and the things we learn from them, make business interesting. If a Purchasing Agent never made a mistake, he would be wasting his time being a Purchasing Agent. He would need only to buy a lottery ticket about once a year or so. But it is equally true that no seller nowadays who is worth a cuss to anybody, will try to mislead a buyer on any count. If a market is weary, it's better business to say so and be content with smaller orders until the clouds roll by.

But the most regular guy, taking every precaution, is bound to get stung occasionally; and the measure of his regularity is the way he gains experience from the stinging. If he sticks his neck out the same way twice, his place should be somewhere in the wide-open spaces —growing prunes, perhaps.

I don't believe in post-mortems. Once you have taken your licking, forget about it, so you add to your little store of experience against another day. If one doesn't do this, he may get so timid he can't do anything without asking papa; and a Purchasing Agent who can't steam ahead under his own power isn't much use to a real house.

Attend a meeting of any Purchasing Agents' Association

(Continued on page 198)



**RED GIANT
Liftrucks**

TO SPEED WAR PRODUCTION IN YOUR PLANT

May be Operated by Women

Speed up the handling of your raw materials and finished products by installing RED GIANT LIFTRUCKS and REVOLVATOR ELEVATORS for your heavy lifting, piling, tiering and stacking. There's a size and type of each to meet your specific needs. Save time; save space; save labor; save money.

Send TODAY for Bulletin—PUR

REVOLVATOR Co.
DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT
352 86th St. NORTH BERGEN, N. J. Since 1904

WeldELLS

have everything*



*Why settle for less?

WHAT do you seek in that welded piping job? Speed? Economy? Sound engineering to meet extreme conditions? What?

Of course any one of these considerations may slightly out-rank any other, depending on the nature of the installation. But the fact remains that every one of them is mighty important to *every* job.

That's why it pays to use the welding fittings that are designed down to the last detail to meet all requirements of every job. With features that are combined

in no other welding fittings, WeldELLS give you the means of doing any job as *well* as it can be done—as easily as it can be done—and therefore as *economically* as it can be done.

A number of these features are pointed out above. Some provide engineering advantages; others reduce installation time and cut costs. Combined, they give you the extra value that distinguishes WeldELLS. Why accept less than the Welding Fittings that have "everything"?

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago, P.O. Box 485 • New York Office: 50 Church Street • Philadelphia Office: Broad Street Station Building

When writing Taylor Forge & Pipe Works please mention Purchasing



In war as in peace,
production is
speeded most when
shipments travel by
the sky route—AIR
EXPRESS.



Essential war materials
are given air transpor-
tation priority. For
details phone Railway
Express Agency, AIR
EXPRESS DIVISION, or any
airline.

NOW IN ITS 16th YEAR

AIR RAILWAY EXPRESS AIRLINE **EXPRESS**

Division of RAILWAY EXPRESS

(Continued from page 196)
tion, and size up the assortment of mugs before you—
every one is different, every mug the outward sign of a
different character and temperament. Yet these as-
sorted mugs all conceal brains directed to the accom-
plishment of similar objects—buying prunes, paper,
persimmons, pickles, peanuts, plumbing, phonographs—
what you will. And most of them do it pretty well, be-
cause the mortality in purchasing jobs isn't too high.
Not one of them is without his own experiences of
getting his tail left in the crack with the door shut on
it; and not many Big Bosses are as considerate and
finely tempered as our venerable prune merchant.

Watch the Road Ahead

A Purchasing Agent needs to keep his feet warm and his head cool. If your feet are cold you can't meet the outside world on even terms; but you mustn't take the lastinadoes of business so damn' seriously that the heat spreads upward under your collar. It is the cumulative value of all your hard experiences, piling up under the bald spot on your cranium, that, taken at their proper value, develop into wisdom and a sane and liberal technique in dealing with daily problems. They used to say of an old factory superintendent I knew well, that he hit the hardest blow with the softest touch of any man living. But in his younger days, he was a regular hellion.

It takes a frost to ripen a persimmon so it's edible without puckering up your mouth to feel like the hide of a crocodile. There are those who think the persimmon, frost-ripened, the most delectable of fruits. Sometimes it takes a pretty hard succession of frosts to ripen a

(Continued on page 200)

Full car shipments
ORDER OF THE DAY

Every car must be packed to the roof. This means taped cartons are being subjected to the worst punishment possible — especially in the load carrying zone. Here is where Safetex Gummed Tape really counts — where tape must be tough and able to "take it".

CENTRAL PAPER CO., MENASHA, WIS



SAFETEX
HERRINGBONE GUMMED
GUMMED TAPE

THE COMPLETE LINE OF WAGNER MOTORS, TRANSFORMERS and BRIDGE BRAKES WILL HELP YOU KEEP WAR PRODUCTION ON TIME!

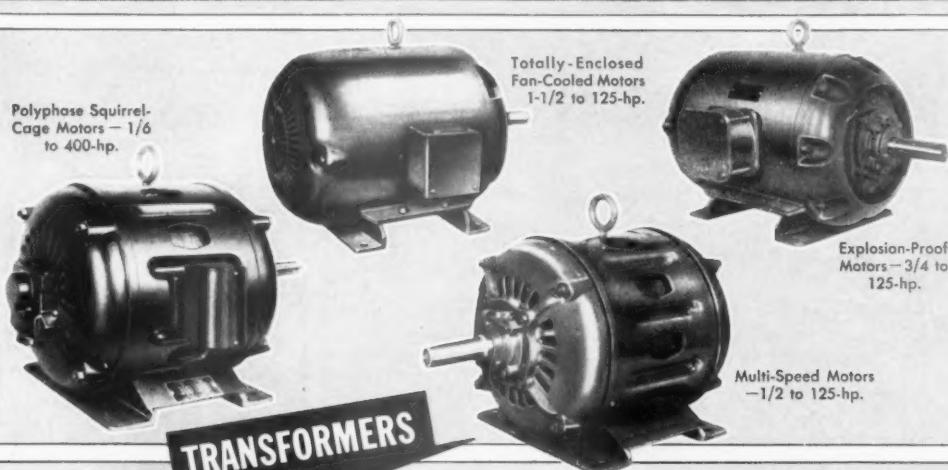
It takes plenty of dependable motors, transformers, and bridge brakes operating at top efficiency to maintain the high-speed production so necessary in our "all-out" war effort.

Wagner fully realizes this, and is working day and night turning out these items, supplying them wherever they are needed to help win this war.

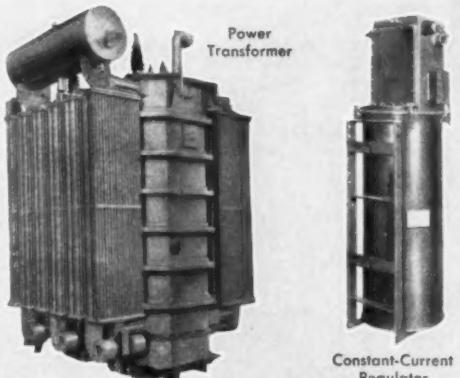
If you need motors, transformers or hydraulic bridge brakes, consult Wagner.

MOTORS

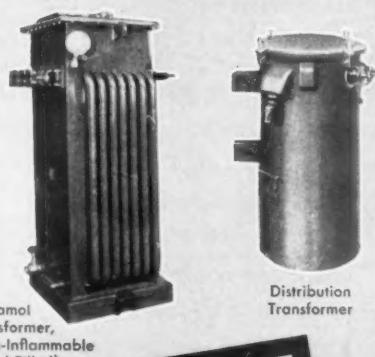
Wagner motors are built in a wide range of types and sizes with electrical and mechanical characteristics to fit the requirements of all types of motor-driven machinery and equipment. Bulletins MU-176, MU-182 and MU-183 illustrate and describe the complete line of Wagner motors. Everyone responsible for the purchase and maintenance of motors should have these bulletins.



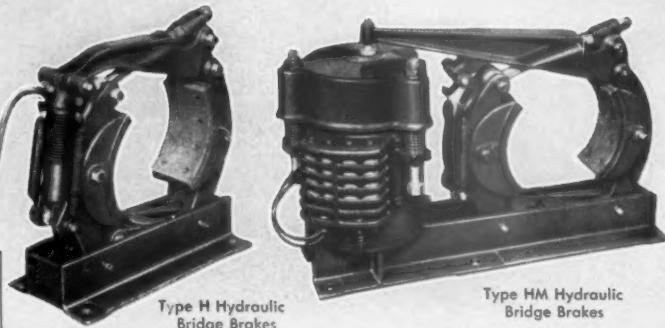
TRANSFORMERS



No matter what the requirement may be, Wagner can furnish the right transformer for the job. The line includes power transformers, distribution transformers, Noflamol transformers and constant-current regulators. Bulletins TU-180 and TU-181 give complete information on the line of Wagner transformers. These bulletins contain information of value to every transformer user.



BRIDGE BRAKES



FIELD ENGINEERING SERVICE!

- 25 sales and service branches are located throughout the country. Trained field engineers are always ready to assist you in selecting motors, transformers, or hydraulic bridge brakes, to meet your particular requirements.

Today, Wagner hydraulic bridge brakes are standard equipment on most overhead cranes. They are ideal for new installations as well as conversions from mechanical brakes. Available in type H for inside cranes, and type HM for outside cranes where automatic parking attachment is desirable. You should have bulletin IU-20. It will be sent on request.

E42-7

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

MOTORS • TRANSFORMERS • FANS • BRAKES



When writing Wagner Electric Corporation please mention Purchasing

WHAT OF WIRE TODAY?



Yes! WHAT OF WIRE?

The immediate prospect is for little, *if any*, improvement in the delivery or allocation conditions. Be Scotch with your handling of the wire you need. Plan its use. Cut waste.

In Shaped Wire if you have not already adopted standard shapes and analyses, it will be prudent to do so at once.

For General Wire check to see that your requisitions are cut to an irreducible minimum.

For Welding Wire use correct analyses and proper size—lean toward larger sizes. Don't permit bending of electrodes. See that each one is used right down to the holder—and that there is no wasteful excess deposit in the weld.

If we can cooperate in any way, call on us—remembering that we operate in the sincere belief that we serve you best by allowing nothing to interfere with giving the wire needs of the armed forces first call on our production.

PAGE FOR WIRE

PAGE STEEL AND WIRE DIVISION

Monessen, Pa., Atlanta, Chicago, New York,
Pittsburgh, San Francisco

In Business for Your Safety



AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT, CONNECTICUT

(Continued from page 198)

Purchasing Agent. If anything is calculated to develop what some are pleased to call the "profession" of purchasing, it is the cumulative result of nips in different places on different people, provided the nippes learn not to expose hastily the same parts of their business anatomies in the same way again. But one shouldn't brood over cause and effect; sift out all that, and add the moral to that sub-conscious store of memory and experience that, like Metal Mike on a steamship, steers the course automatically, leaving the helmsman to chew his tobacco in peace.

The road ahead is the thing of interest, not the road you have passed over. If your general batting average keeps you with a good team you needn't worry about the errors.

"Mr. Burgess, you did everything possible and you have nothing to regret."

1 1 1

TREATMENT OF COAL WITH CALCIUM CHLORIDE IS SUBJECT OF RESEARCH PROGRAM

An extensive program of research on the treatment of coal with calcium chloride to reduce dust in handling and to avoid difficulty with the freezing of wet coal has been initiated at Battelle Memorial Institute under the joint sponsorship of the Calcium Chloride Association and Bituminous Coal Research, Inc., according to an announcement today by Clyde E. Williams, Battelle director.

Calcium chloride long has been used for the treatment of coal at the mines and at the dealers' yards. Because

(Continued on page 202)

GAIN PRODUCTION TIME WITH THESE EFFICIENT CUTTERS

—They "stand up" under fast speeds and feeds...and give maximum performance

Plain Milling Cutters
Side Milling Cutters
Inserted Tooth Cutters
Spiral End Mills
Key Seat Cutters
T Slot Cutters
Shell End Mills
Angular Cutters
Convex and Concave Cutters
Corner Rounding Cutters
Metal Slitting Saws
Rotary Shears
Screw Slotting Cutters
Sprocket Wheel Cutters
Ground Formed Cutters
Gear Cutters

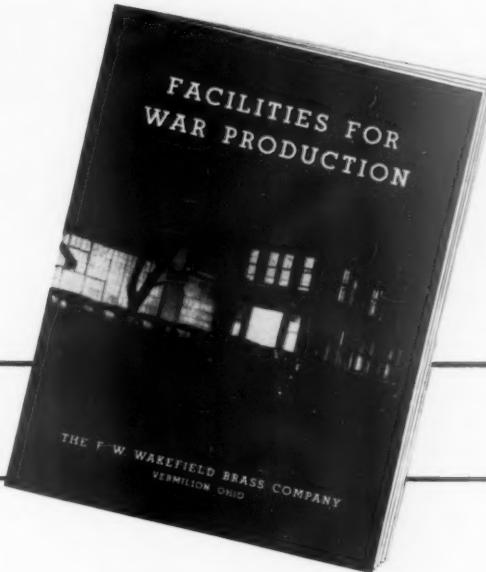
Catalog on request
IBS Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.

BROWN & SHARPE CUTTERS

Can we give YOU a hand on WAR WORK?

Over 850 sub-contracts
completed to date

*This booklet shows what we're equipped to do . . .
may help you decide.*



In normal times, we specialize on lighting fixtures and fabricate light-gauge metal parts. For over 35 years our reputation on this work has been good. Right now we are continuing to supply essential lighting equipment to many a war plant and to all branches of the nation's services. But we want to do more!

What have we to help you?

If you'd like more information about our ability to help you, send for a copy of "Facilities for War Production" today. It gives a quick picture of our equipment, personnel and transportation available. It also gives the convenient location of our 17 trained resident engineers, always at your service. Write or just fill in the handy coupon below.



NEW DAMAGE CONTROL LIGHT for emergency lighting

Developed for the Navy, this portable damage-control light has now been released for use by industrial plants, fire departments, power companies, telephone and telegraph companies for the lighting of emergency repairs. Over-voltage use of a "sealed beam" lamp, Navy type SB-1, provides light of high intensity, accurate focusing. Unlike automobile headlights, the clear face of this lamp transmits light without diffusion. It's available in three models (1) powered by four Navy-type wet cells of spill-proof construction; (2) by six No. 6 dry cells; (3) with standard storage battery. Write for details.

*Wakefield also makes topnotch fluorescent fixtures
to speed work in war plant office and drafting room.*

**THE
F. W. WAKEFIELD**

112 BIRCH PARK • VERMILION, OHIO

C O U P O N

**F. W. WAKEFIELD BRASS CO.
VERMILION, O.**

Please send me a copy of "Facilities for War Production".

Name

Company

Address

City



Coil consisting of 2500 turns of No. 24 enameled wire impregnated with HARVEL 612-C and baked 8 hours showed perfect bonding and curing throughout.



These coils made by the Magnetic Windings Company are being lowered into the impregnating tank for HARVEL treatment.

When insulating coils and windings with varnish, why spend 48 hours in baking three coats of ordinary varnishes, when three coats of HARVEL 612-C Insulating Varnish can be baked and thoroughly set in 20 hours?

Not only does HARVEL 612-C cut baking time in half, but it insulates better because electrical windings are:

- Dry Throughout
- Oil Proof
- Acid and Alkali Resistant
- Resists High Temperatures

HARVEL 612-C INSULATING VARNISH is an internal drying type, which penetrates the innermost interstices of windings; sets to an infusible state after baking; perfectly bonds even the smallest wires and keeps them in place. This varnish is comparable to phenol-aldehyde varnishes but there is this difference: the mildest solvents it is possible to use are included in 612-C. These solvents do not attack the enamel coating of magnet wires.

Because HARVEL 612-C VARNISH solidifies throughout by heat-induced chemical polymerization and not by oxidation, there is no semi-liquid varnish that can run or ooze from coil interiors when they are heated or stressed in service.

This varnish will not soften or "throw out" on equipment operated at elevated temperatures nor on motors rotated at high peripheral speeds.

HARVEL 612-C INSULATING VARNISH can be applied on all classes of electrical windings, regardless of type, size and construction, either by vacuum and pressure impregnation or by dipping or brushing.

Write Dept. 76 for complete catalog of HARVEL and IRVINGTON VARNISHES.

Send for complete Insulating Varnish Manual—contains 34 pages of pictures; charts; descriptions of 31 different insulating varnishes, paints and enamels; and application directions.

IRVINGTON
VARNISH & INSULATOR CO.

IRVINGTON, NEW JERSEY, U. S. A.
Plants of IRVINGTON, N. J. & HAMILTON, ONT., CAN.
Representatives in 20 Principal Cities



(Continued from page 200)

of its moisture-attracting and moisture-holding properties, it keeps enough moisture on the coal to make the fine particles stick to the larger pieces, and thus avoids a dust nuisance when the coal is delivered or shoveled. Solutions of calcium chloride freeze at much lower temperatures than does water. The application of the salt to coal that is loaded into cars wet after a wet cleaning process will avoid the freezing of the coal into a solid mass in the car in severe winter weather.

Despite the extended experience with the use of calcium chloride, Mr. Williams pointed out that information is lacking on the correct amounts to be used for most effective treatment of coals of various ranks and sizes and on the best methods of application to the coal. The program of research is to be directed toward obtaining complete and authoritative information on these points. By cooperation with the coal industry, through its research agency, Bituminous Coal Research, Inc., the information will be quickly disseminated to the coal producers and will be quickly translated into practice.

The new and extended program of research will supplement and be correlated with a program that the Calcium Chloride Association has carried on for four years and is continuing at West Virginia University under the direction of Professor W. A. Staab. Of particular interest in the research at West Virginia University is the investigation of the effect of the treatment on the combustion characteristics of coals in residential underfeed stokers.

The member companies of the Calcium Chloride Association are the Dow Chemical Company, Michigan

(Continued on page 204)

**PROMPT
DELIVERY
for METAL
Spinnings
and Stampings**

*Specialists IN
SUB-CONTRACTS
FOR WAR WORK.*

Enlarged Plant Facilities to handle all sizes, all metals and all shapes of Metal Spinnings, Metal Stampings, Deep Drawings, Power Brake Work, Spotwelding, Metal Finishing and Assembly Work.

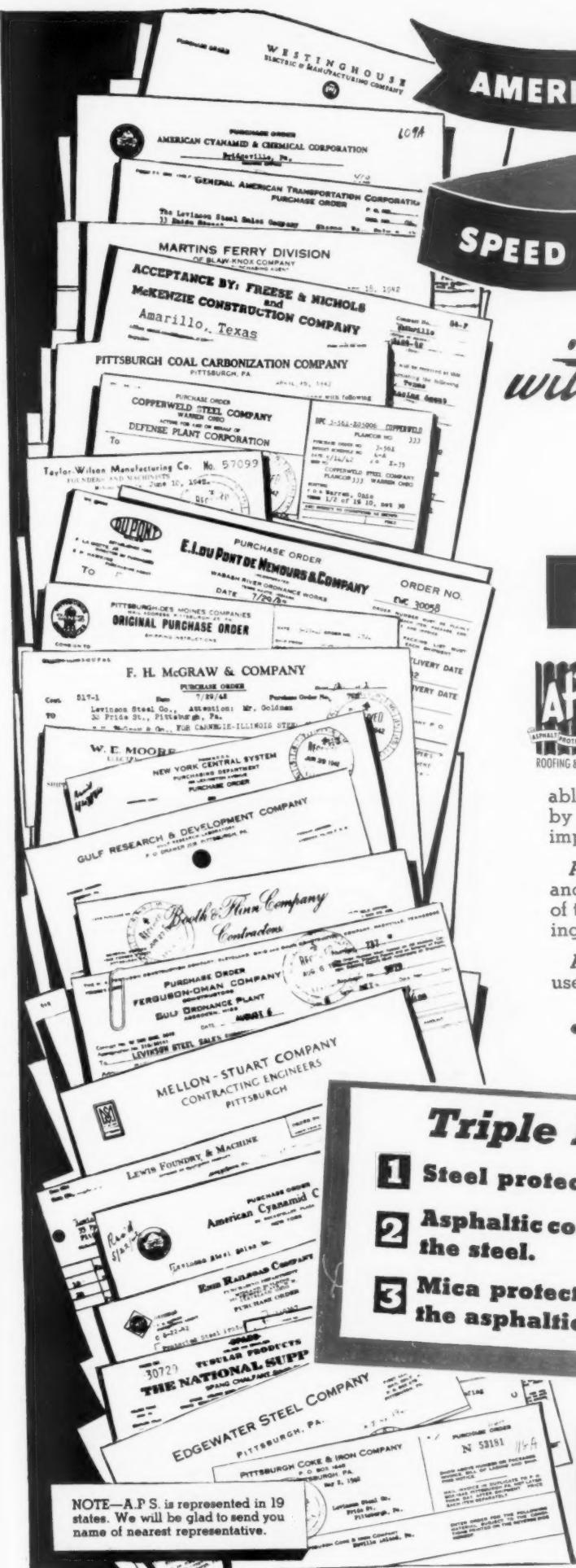
We understand how to do things in the best ways, and in the fastest ways. The rush jobs with which you favor us, however complex they may be, are handled precisely, yet as fast as your needs require. Call on us when your next work of this type comes up. You'll be glad you did!

**Commercial
Metal Products Co.**

2253 W. ST. PAUL AVE., CHICAGO, ILL.

Phone Armitage 1123

Largest Metal Spinning Plant in the Middle West

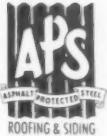


AMERICA'S MAJOR INDUSTRIES

SPEED WAR CONSTRUCTION

with
APS

ASPHALT PROTECTED STEEL
ROOFING AND SIDING



Here's a Roofing and Siding that has won the instant favor of the country's leading industries for speedy, economical war-time construction. A.P.S. is an asphaltic coated product . . . rugged, durable, weather resistant, easy to erect and quickly available! Its resistance to extreme climatic conditions is proven by A.S.T.M. laboratory test methods, and in addition it is impervious to acid fumes and acid gases.

A.P.S. is obtainable either flat or corrugated. Corrugating and forming operations are performed after the application of the protective coatings. It is furnished in all types of flashing, ridge roll, gutters, etc.

A.P.S. complies with Army specifications and is being used for U.S. Army Ordnance Construction.

• Write for our latest illustrated engineering hand-book and samples!

Triple Protection

- 1 Steel protects the structure.
- 2 Asphaltic compound protects the steel.
- 3 Mica protects and reinforces the asphaltic compound.



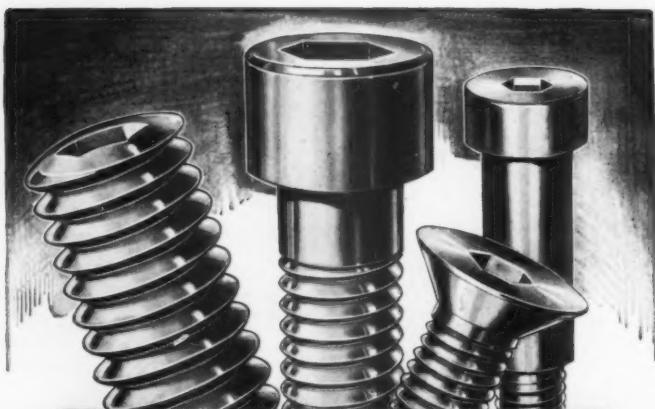
LEVINSON STEEL SALES CO.

National Distributors for A.P.S. Roofing and Siding

33 PRIDE STREET • PITTSBURGH, PA.

NOTE—A.P.S. is represented in 19 states. We will be glad to send you name of nearest representative.

When writing Levinson Steel Sales Co. please mention Purchasing



ALLEN'S QUALITY PERSISTS

IT STAYS on the level of our all-time *high* in strength of material, thoroughness of heat-treating, accuracy of threading. Not one characteristic of Allen screws has changed except for the better.

Production-gains have *all* been scored by improved manufacturing processes; not in a single case by cheapening the product.

Step-by-step inspection standards have been *more* intensively applied, not less. So that everything "Allens" have had they have **NOW**. And every quality that's won your preference will continue to *bold* it.



Order only through your local Allen Distributor—the man who gets you the goods to the LIMIT of the supply!

THE ALLEN MFG. COMPANY
HARTFORD, CONNECTICUT, U. S. A.

When writing advertisers please mention Purchasing

(Continued from page 202)

Alkali Company, Columbia Chemical Division of the Pittsburgh Plate Glass Company, and the Solvay Sales Corporation. R. A. Giddings is secretary of the Association, with offices in the Penobscot Building, Detroit.

TUBE TURNS IS FIRST KENTUCKY PLANT TO WIN ARMY-NAVY "E" FLAG

Tube Turns, of Louisville, recently won the distinction of being the first war industry plant in the state of Kentucky to receive the coveted Army and Navy "E" flag for outstanding production efficiency.

National, state and local industrial and military leaders attended the brief, colorful ceremonies at the plant on September 18th, at which the award was presented before a crowd of more than 3,000 employees and their families. Individual Army-Navy "E" pins were later distributed to every employee.

Characteristic of the nation's aroused industrial might, W. H. Girdler, president of the company, said in accepting the award, "we have just begun. Our production in the next twelve will be three times more than in the past twelve months!"

The employee representative selected to receive the individual Army-Navy "E" pins, on behalf of all employers, declared significantly, "you haven't seen anything yet!"

The Tube Turns company, manufacturers of Tube-Turn welding fittings, and an affiliate of The Girdler Corporation, has attracted nation-wide attention in producing a variety of critical forged materials for Army Ordnance, the aviation industry and other vital war purposes, and in maintaining an unusually high degree of employee morale as a contributing factor.

DANDUX CANVAS PRODUCTS

"DANDUX" spells Quality Canvas Goods

Service records in the nation's leading industries—the use of "Dandux" by leading railroads, industrial and marine organizations—attest the greater value, economy and precision craftsmanship of "Dandux" Canvas Products.

Their extra margin of service—particularly important in these days, is your guarantee of canvas value supremacy! Send for free descriptive folder No. P-2 and full information on your requirements, today.

**DANDUX
QUALITY
CANVAS**

C.R. DANIELS, INC.

Manufacturers of Everything of Canvas
101 CROSBY ST. • NEW YORK, N.Y.
Newark • Boston • Buffalo • Chicago • Cleveland • Detroit
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Men
that
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Men whose opinions are supported by the facts say that we can lose this war unless America's *total* effort is given to producing the needs of war.

The above chart pictures **READING-PRATT & CADY'S** answer to that challenge. And almost all of you who look to us for your valves have agreed that by giving every ounce of effort to war production, we are loyal to your own best interests. Remember that, won't you?

And remember, too, that when **READING-PRATT & CADY VALVES** are again freely offered to you they will be the product of men who have learned much under the pressure of 'round-the-clock production of the kind of valves on which Americans at war could stake their lives.

READING-PRATT & CADY

MANUFACTURERS OF

READING CAST STEEL VALVES • PRATT & CADY BRASS & IRON VALVES
D'ESTE VALVE AND ENGINEERING SPECIALTIES

Reading, Pa., Atlanta, Boston, Chicago, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco



A DIVISION OF **AMERICAN CHAIN & CABLE COMPANY, INC., BRIDGEPORT, CONNECTICUT**

When writing American Chain & Cable Company, Inc. please mention Purchasing



**Battle Line or
Production Line ...
COMMUNICATIONS
DARE NOT FAIL!**

On both fighting and industrial fronts, reliable communications are indispensable. And in both, Kellogg is on the job. For this company has been a leading manufacturer in its field for over 45 years! On any problem involving communication equipment, Kellogg's engineering experience, research facilities and precision production methods have, or will find, the practical answer.

KELLOGG SWITCHBOARD & SUPPLY CO.
6680 S. Cicero Ave., Chicago, Ill.

Need Capacitors? Check with Kellogg!

Kellogg, one of the oldest manufacturers of high quality telephone, radio and electrical equipment, has the facilities to handle large or small contract orders for wax and oil impregnated paper capacitors. We are also equipped to help in the design and development of capacitors for special purposes ... and to recommend the proper type where substitution on existing equipment is necessary. For full data, write the Special Products Department.

KELLOGG
WHERE ENGINEERING AND RESEARCH BUILD
Finer Communication Equipment
FOR WAR AND PEACE

Photos show only a few of the many ways Kellogg instruments and parts are used by the armed forces.
U. S. Army Signal Corps Photos.

GOODRICH READY TO BUILD TIRES OUT OF RECLAIM

The B. F. Goodrich company has completed plans for going into immediate production of tires made of reclaimed rubber, if the recommendations of the Baruch Committee report calling for the provision of this relief for tire-starved American motorists are officially put into effect, says John L. Collyer, president.

Recommending strict enforcement of a speed limit of 35 miles per hour for private automobiles, together with adequate tire inspection, the Baruch Committee said that on this basis it would be possible to provide enough new tires and recapping materials to maintain its proposed program if a maximum of 138,000 tons of reclaimed rubber were made available during the next 16 months.

"We are satisfied that from a technical and from a manufacturing standpoint the rubber industry can provide the country's motorists with the replacement tires they need for essential driving, using available reclaimed rubber and other materials now being produced under the government program, when these become available," Collyer said. "These wartime tires would be under the control of government agencies, it is understood."

"Our tests and development work on tires made of reclaimed rubber give us assurance that if motorists comply fully with the driving recommendations of the committee's report, they may expect reasonably satisfactory service from these tires."

"As early as June, 1940, our company, realizing the critical rubber situation this country might face, introduced the Ameripol synthetic rubber tire, and has continued development work on tires made with synthetic

(Continued on page 209)

Hammond
OF KALAMAZOO

CARBIDE TOOL GRINDERS

COMBINATION CHIPBREAKER-GRINDER



"Keep 'em Sharp"

WRITE TODAY FOR LATEST BULLETIN NO. 201

MODEL 4 — Combination Chipbreaker and Grinder
(Illustrated Upper Right)

MODEL 6 — Carbide Tool Grinder

MODEL 10 and 14 — Wet or Dry Carbide Tool Grinders
with Patented No Spray-No Splash Wheel Guards

MODEL 10-A — Carbide Tool Grinder



Hammond Machinery Builders

1633 DOUGLAS AVENUE • KALAMAZOO • MICHIGAN

EASTERN BRANCH • 71 WEST 23RD STREET, NEW YORK CITY



From mills that roar and screech

Until peace comes the wire rope mills of America must roar and screech by day and by night.

For without wire rope there would be only a dribble of iron ore, only a thin fleet of ore boats on the Great Lakes, only a starvation flow of steel from the smelters.

The wire rope manufacturers of

America are proud of their ability to produce; proud also that every mill makes Preformed Wire Rope for the hard action jobs. Preformed lasts longer, thereby saving precious time. It is safer, thereby reducing accidents.

But it also saves steel in a time when steel is vital.

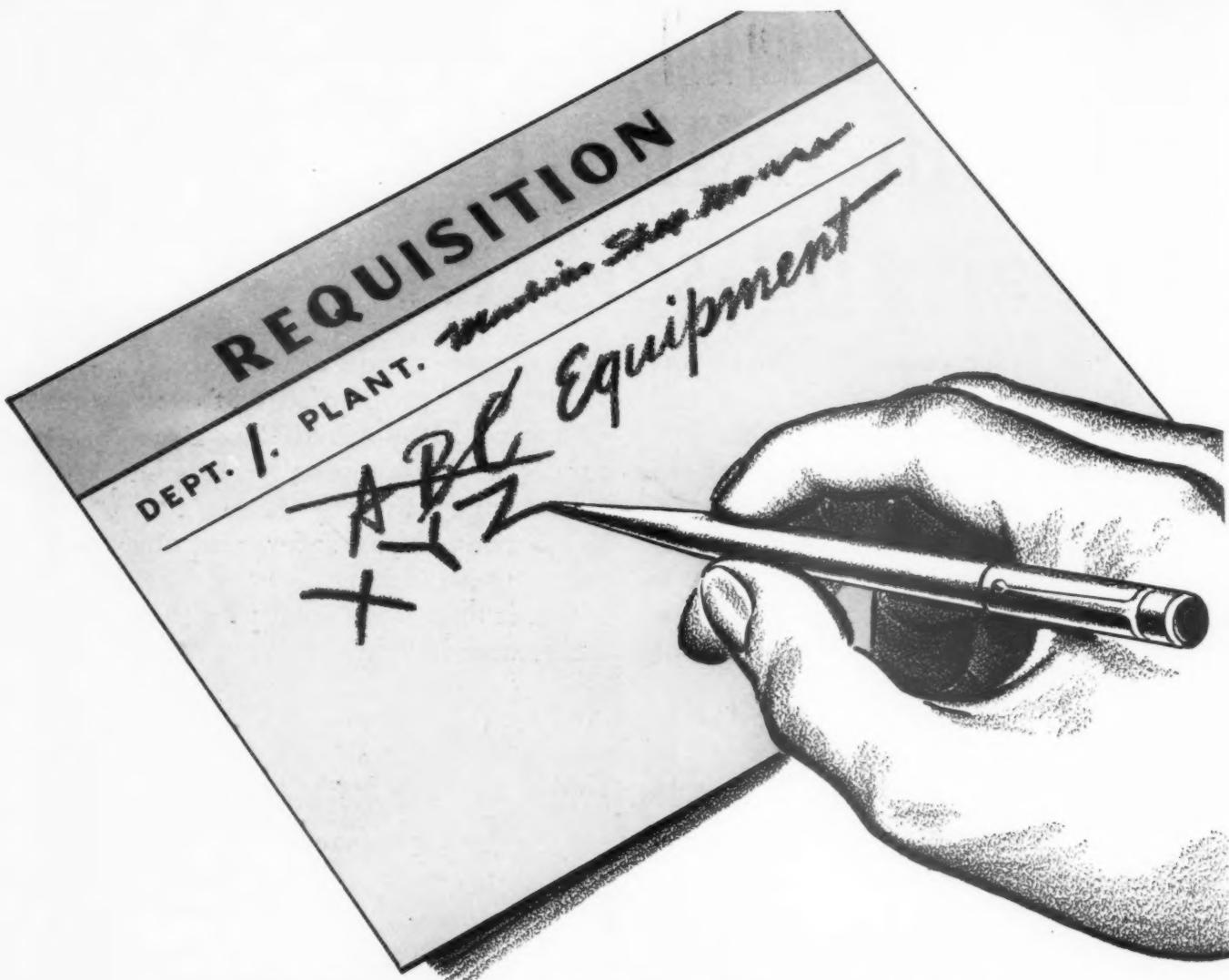
Preformed wire rope

For the Action Jobs of Industry



ASK YOUR OWN WIRE ROPE MANUFACTURER OR SUPPLIER

When writing Preformed Wire Rope please mention Purchasing



HOW to guide the hand that holds this authority . . .

Your product may be okayed by a war plant's engineers...acceptable to management...requisitioned by foremen...yet, miss out on the order. For, today, final buying decisions in the majority of plants have been vested in a single authority with power to make the selection regardless of the brand named on the requisition.

Purchasing Agents Rule Procurement

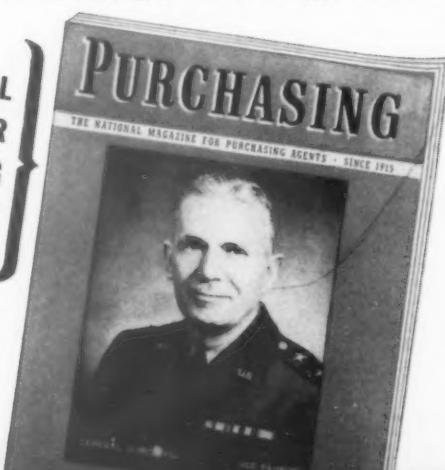
Every phase of procurement is now headed-up by the Purchasing Agent. His department is a clearing house for engineers' reports, performance records, manufacturers' data, availability and costs of all plant supplies. It not only is the *first* point of contact in establishing your product on the "approved list"; but also, it holds *final* authority to switch orders to or from any product on the list.

Does the P.A. Know Your Story?

Can you count on busy plant men to pass on your sales message to purchasing executives? To give you

thorough coverage of centralized purchasing departments throughout American war industries, you need PURCHASING! 205 East 42nd St., New York City; 333 N. Michigan Ave., Chicago; Leader Bldg., Cleveland.

THE NATIONAL
MAGAZINE FOR
PURCHASING
EXECUTIVES



A CONOVER-MAST PUBLICATION

NOVEMBER

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rubber and also tires made with reclaimed rubber since that time," Collyer said. "The reclaim division of the B. F. Goodrich company was the first to develop and use the alkali method for making reclaimed rubber. This method will be used in making the major portion of the reclaimed rubber for the proposed wartime tires.

"Our primary interest has been to clear all decks so that the utmost speed can be made in turning out these new wartime tire replacements. We do not know, as yet, the details of the program that may be expected to be drawn up on the basis of the Baruch Committee's recommendations.

"But we are confident that such a program is on the way, and recognize our responsibility to handle whatever assignment may be given to us, as quickly and efficiently as possible."

111

ENGINEERS TERMED THE COMMANDOS OF WAR'S HOME FRONT

The scientist and the engineer, fighting behind the lines in the nation's war effort, were described as counterparts of the military's Commandos and Rangers at the dedication of Olin Hall of Chemical Engineering at Cornell University last month.

"Neither millions of men nor billions of dollars could be thrown into the war effort effectively until these first 'commando' attacks of scientists had been successful," said John L. Collyer, president of the B. F. Goodrich company and a Cornell trustee, who made the principal address.

The new building—which houses chemical engineer-

(Continued on page 211)

Exact Weight Scales For Every Industrial Use



EXACT WEIGHT Scale Model 271M... all duty end tower model for many weighing operations. By removing scoop and counterbalance you have a high speed checkweighing model... Accurate to $\frac{1}{16}$ oz.—capacity to 12 lbs.

EXACT WEIGHT Scales are the leaders in the pre-determined weighing field for such operations as check-weighing in packaging, hand weighing ingredients, counting small parts and testing. More than 50,000 corporations, companies, and individual users in 53 major industries from coast to coast are our customers. If an operation can be handled by weighing EXACT WEIGHT can do it.

Write for details for your plant today!

The Exact Weight Scale Company
122 W. Fifth Ave., Columbus, Ohio

THERE IS NO SUBSTITUTE FOR EXACT WEIGHT

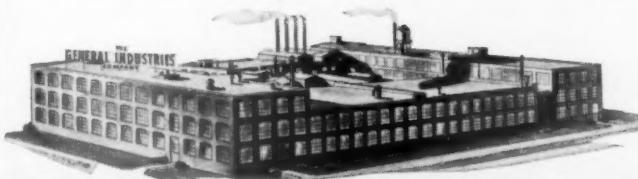
**INDUSTRIAL
PRECISION SCALES**

GENERAL INDUSTRIES MOLDED PLASTICS

*make tough jobs
easier*



PRODUCING FOR VICTORY is a tough job, no matter what the material. Manufacturers in war production have been turning more and more to molded plastics; for they are finding that molded plastics possess qualities that rival and often excel other materials for the purposes required, and can often be produced to effect savings of time and cost. General Industries, with its large capacity, modern equipment and wealth of experience, is contributing in full measure to Victory production, and is making them fully effective by delivering "On Time."



THE GENERAL INDUSTRIES CO.

Molded Plastics Division • Elyria, Ohio

Chicago	Phone Central 8431	New York	Phone Longacre 5-4107
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		Philadelphia	Phone Camden 2215

There is a copy in your office-

A New Buying Guide for Industry



Many men in industry found this bulky, heavy book too difficult to use for quick reference. They wanted a simpler, more useful book that would save time.

This streamlined book contains everything a plant man wants to buy—and saves bulk by a better arrangement—and avoiding duplicate classification.

Compiled to meet the Modern Requirements of
Superintendents, Production and Buying Officials in Industry

NEW FEATURES:

For the busy buyer who wants to know "where to buy it" and "who makes it" this is the modern, streamlined version of what an industrial directory should be. 15 lbs. lighter, fewer pages—yet complete and accurate. Contains Mechanical Data Section with useful tables and formula in most common use. Has a compact easy-to-use Chemical section.

If you are not already a constant user as hundreds are, try it out on supply sources. Use it for a week—and you will then be a confirmed user. You are sure to like it for you can locate what you want in half the time required by the unnecessary bulky books this new directory replaces.

YOUR PLANT DOUBTLESS HAS A COPY OF THIS NEW DIRECTORY NOW. If not, write us.

Chicago Office:
333 N. Michigan Ave.

New York City Office:
205 East 42nd Street



"Boy, do I like this one. 5 lbs. as
against 20 lbs. Easy to use—easy
for even me to carry to anyone."

**Plant-Production
DIRECTORY**

(Continued from page 209)

ing laboratories and classrooms for approximately 500 students—was presented to Cornell during the ceremony today by Franklin W. Olin, president of Western Cartridge company, who graduated from the University in 1886 and is now a trustee. It is dedicated to Franklin Olin, Jr., Cornell '12, who died in 1921.

"Our accuracy in bombing," Collyer said, "our protection against surprise air raids, our detection of enemy submarines—these are a few of the contributions of commando raids by American scientists against stubbornly resisting 'frontiers'."

That many of these scientific advances are being made by faculty members of colleges and universities supported in whole or in part by private endowments was emphasized by Cornell's President Edmund E. Day. He referred to the new building as "impressive evidence of the continuing vitality of private philanthropy in support of American higher education," but pointed out that "the dissipation of such support is threatened at the moment not only by the terrific dislocations of the war, but by persistent economic trends and government policies of even more far-reaching consequence."

"It is high time that the prevailing drift of public policy with respect to the place of private philanthropy in a free society be critically and dispassionately reviewed," Dr. Day said. "Can we wisely accept the idea that all the important social services, including education, are destined to become purely governmental functions?"

"The issue is one of great social import for all liberty-loving peoples. Let those who have the means of maintaining effectively the private support of higher education know that they preserve principles that are of the

(Continued on page 212)

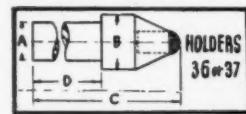
THIS DIAMOND WHEEL DRESSER STANDS ABUSE!

Carboly Dressers stand abuse because they don't depend on one diamond. Instead, they have a multitude of sharp, diamond cutting points permanently held in a special matrix. To get a new cutting surface just give the dresser a quarter turn in its holder. No remounting! No worries! Lower cost! Send for catalog DR-38.

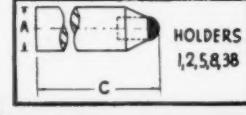
CARBOLOY COMPANY, INC.
1191 E. 8 Mile Blvd., Detroit, Michigan.
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HOW TO ORDER
*Mounted Free in Desired Holder. Standard Holders shown below. Special Types when needed. Allow 1 Week—10 days for holders No. 37, 38, and S-16-A.

Grinding Wheel	Correct Dresser	Price Each
Diameter	Width	
Up to 20"	Up to 1 1/2"	2-B \$ 9.60
Up to 26"	Up to 2 1/2"	3-C 12.60
Up to 42"	Up to 8"	4-D 15.35



Holder Number	1	2	5	8	36	37	38	S-16-A
A	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
B					1/4	1/4	1/4	1/4
C	1 1/2	1 1/2	4	1 1/2	2 1/2	2 1/2	3 1/2	1 1/2
D					1 1/2	1 1/2	1 1/2	1 1/2



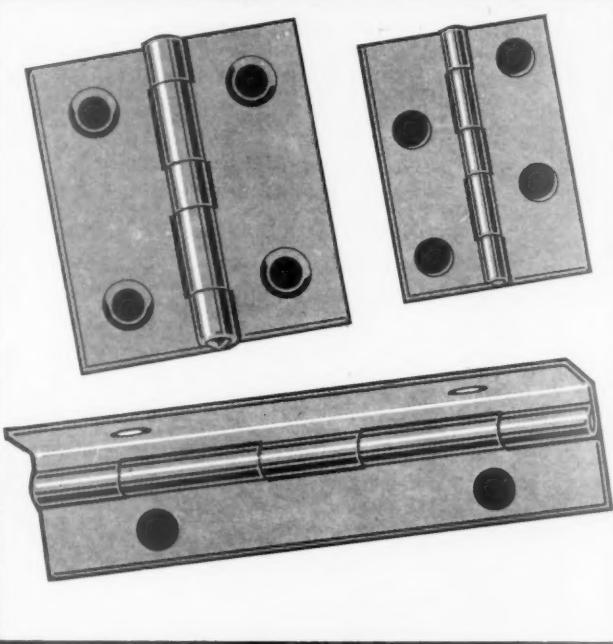
HOLDERS TYPE	NOS-16A
	Available only in Dresser Size 28

CARBOLOY Diamond Impregnated WHEEL DRESSERS

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Need Butts or HINGES

for War Work?



For hinges of any size...from small jeweler's models to the longest continuous types...you can get promptest service from Veeder-Root's modern hinge-manufacturing plant. That goes for stampings, too. Latest automatic machinery assures high-speed, volume production...and a complete plating department can give you practically any finish you desire. Send sketches and specifications, together with your preference rating, and you will get prices and dates by return mail.

Hinge Division
VEEDER - ROOT
INCORPORATED
HARTFORD, CONNECTICUT
Offices in Principal Cities throughout the World

**Maximum Tool Life
plus Maximum Production
—Use CROBALT!**

● A superior heat resisting chromium-cobalt-tungsten high speed cutting alloy. Permits higher speeds with longer tool life.

Eliminates the possibility of chipping. Combines maximum production with minimum cost per piece.

Catalog rushed on request . . .

Write Dept. C

**CROBALT INC.
ANN ARBOR, MICHIGAN**

CROBALT

(Continued from page 211)

utmost importance for the future of all our free institutions. They are, in truth, defenders of the faith."

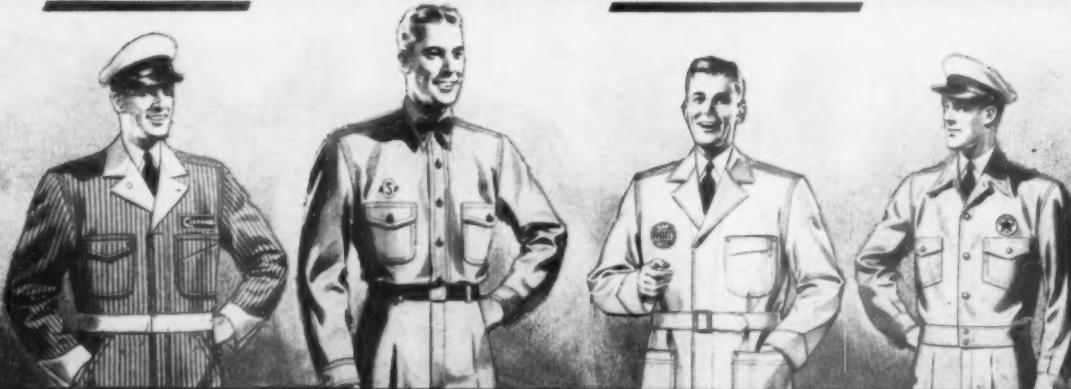
In his address, Collyer illustrated the kinship between laboratory and battlefield by stating that "modern war on land and sea—and in the stratosphere and under the sea—is plotted in the laboratory."

"Here in the United States," he said, "the commandos of science and industry have been hard at work. Their initiative, skill and perseverance have made it possible for us to get over many hurdles quickly. They have been confronted with many barriers which had to be cleared away before our full strength could be employed."

As examples, he said that "thanks to American scientists, we have the turbo-supercharger to carry our air power higher than our enemy's into the stratosphere, and de-icers to prevent the formation of ice on airplane wings and tail surfaces. Without these aids the gallantry of our fliers and the skill of our plane builders would not be equal to the latest demands of warfare."

"In the sphere of critical materials," Collyer concluded, "what obstacle could seem more insurmountable than the making of synthetic rubber to replace our natural rubber losses from enemy action? The commandos of science have been working on this grim objective, too. Back in June, 1940, after 14 years of research, our company announced for sale passenger car tires made with an American synthetic rubber, better than the German Buna. Although the manufacture of these tires was admittedly not feasible from an economic standpoint, yet we did this to focus attention on the nation's critically low rubber stocks and to challenge scientists throughout the nation to increased efforts in

FOR BETTER FIT — FOR GREATER COMFORT



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WIRK INDUSTRIAL GARMENTS AND WIRK UNIFORMS

For more than two decades, WIRK has continually designed, developed and improved Work Clothing and Industrial Uniforms. More and more our organization is regarded as headquarters for fine quality and matchless service in industrial garments. WIRK GARMENTS are produced in one of the largest factories of its kind in the nation by hundreds of skilled workers. When you think of Work Clothes think of WIRK Quality.



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PURCH

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the whole synthetic rubber field. Both of these objectives were accomplished."

Dr. Fred H. Rhodes, director of the School of Chemical Engineering at Cornell, declared that trained manpower is really at the base of most of the so-called shortages of critical materials. "Our actual shortage," he said, "is not in material itself but in two other things—in available labor to convert raw material into finished products and in technical knowledge as to how to effect this conversion most efficiently."

"We have no real shortage of steel. What we really have is a limitation of our facilities for converting iron ore and coal and limestone into the finished steel. We have no real shortage of rubber, but merely a lack of technical information and industrial facilities for converting oil or starch or cellulose into the rubber that we need."

"It is the province of the chemical engineer to supply the means for effecting these necessary conversions of raw materials into the things that are needed for direct use. It is for this reason that the training of competent chemical engineers, the thorough familiarity with their profession as it now stands, and the scientific and technical imagination to carry our present knowledge to new levels, are especially urgent."

111

PURCHASING OFFICERS NEEDED FOR CIVILIAN WAR SERVICE

The enormous expansion programs of Government establishments vitally connected with the war effort have vastly increased the volume and importance of the work of the Government Purchasing Officers. In order that Government establishments may operate at maximum capacity, it is imperative that Purchasing Officers be recruited who are skillful, resourceful, and far-seeing.

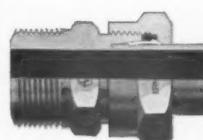
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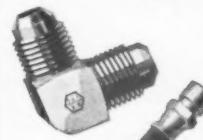
with WEATHERHEAD FITTINGS AND HOSE

Weatherhead fittings and hose assemblies are engineered to meet the war-time demand for speed—for simplicity of installation—and satisfaction in performance.

ERMETO SAFETY FITTINGS—A modern method of connecting tubing that eliminates flaring, threading, welding or soldering. Suitable for any type of metal tubing, and since thin walled tubing may be used, reduces the amount of material required.



BRASS TUBE FITTINGS—Quality tube service parts for small diameter tubing—a complete range of fittings in patented inverted, S. A. E., and compression types.



FLEXIBLE HOSE ASSEMBLIES AND FITTINGS Non-metallic flexible hose for automotive, aviation and machine uses. Oil-proof and gasoline-proof. Weatherhead complete hose assemblies with fittings attached are quickly and easily installed for high pressure fuel, gas, air and hydraulic application.



We also manufacture low pressure hose which is furnished in any length with necessary fittings.

PACKLESS VALVES—An advanced product of Weatherhead engineering, these valves have only four working parts. Tested through 100,000 on and off cycles, Weatherhead packless valves are leak-proof, quick acting and extremely rugged in construction. Compact design, trim appearance, and low overall height provide attractiveness of installation.

Tell us the Weatherhead products in which you are interested and we'll send complete details.

THE WEATHERHEAD CO. • CLEVELAND, OHIO



A Plastic "Wrap"

FOR AN EXCEPTIONAL TAP

"PROTECTS THE TAP EN ROUTE"

"EASY TO STORE AND HANDLE..."

"INSPECTED AND SEALED AT THE FACTORY..."

Threadwell
TAPS OF DISTINCTION

One of the many things that Threadwell has done to insure better performance from taps is to pack every high speed tap under 1/2" size in a transparent plastic tube as shown.

THREADWELL TAP & DIE COMPANY
GREENFIELD, MASSACHUSETTS
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BEARINGS
all Types

CJB Ball Bearings have large balls for capacity—deep grooved rings for strength—and mirror-finish raceways for smooth performance and long life.

BOWER Tapered Roller Bearing raceways are "Super-Finished" for extreme accuracy and quiet operation. Maximum capacity and long life are obtained through positive roll alignment—heavy thrust shoulder—and constant roll end lubrication.

AHLBERG All-Bearing Service is complete and convenient—made available through several hundred leading Supply Houses and 20 Factory Branches which carry stocks and provide engineering help.

AHLBERG
BEARING COMPANY
Manufacturers of **CJB** Master Ball Bearings
★ 3039 WEST 47TH STREET • CHICAGO, ILL. ★

(Continued from page 213)

Purchasing Officers are now being sought for positions which pay from \$2,000 to \$4,600 a year. They will prepare specifications for the purchase of government supplies; prepare invitations to bid; and maintain current information with respect to market trends, fluctuations, sources of supply, and laws and regulations pertaining to Federal procurement.

The civil service examination announced for filling these positions calls for persons who have had from two to six years of responsible experience as purchasing or procurement officer handling large lots of materials of considerable variety. This experience may have been acquired with a large railroad, or other public utility, a large industrial or commercial establishment, a branch of the Federal Government or with the government of a State or large municipality.

Applications are not sought from persons engaged in war work unless a change of position would result in utilization of higher skills possessed by the applicant. In keeping with War Manpower Commission policy, individuals engaged in any production and maintenance occupations in non-ferrous metal mining, milling, smelting and refining, and logging and lumbering industries in the critical labor area which includes the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming, cannot be considered for appointment in the Federal Government unless a certificate of separation from the United States Employment Service has been obtained by the Civil Service Commission.

There are no age limits for this examination. No written tests are required. Applications will be accepted until the needs of the service have been met. Announce-

**Tables designed to collapse
get tops built to STAND UP...**

Collapsible military equipment designed for hard service utilizes Douglas Fir Weldwood

Good examples of production items employing wood and metal construction are the utility tables illustrated.

Made for the Army and Navy, they are built to withstand abuse and hard service. Like everything else needed today by our fighting forces, they have to be produced fast.

UNITED STATES PLYWOOD CORPORATION • New York, N. Y.
World's Largest Producer of Plywood



Weldwood is the family name of plywood products made by the United States Plywood Corporation.

When writing advertisers please mention Purchasing

Weldwood lends itself admirably to this type of product. It is strong, light in weight, and of uniform quality. Made in standard panels of many convenient sizes, it proves a production shortcut that saves time, labor and expense.

Note at right the variety of types and sizes in which Weldwood is made. Take advantage of these, and of the broad experience and extensive, highly specialized facilities of U. S. Plywood. Write today for full information and illustrated catalog. Address:

Advantages offered by various types and sizes of WELDWOOD

Standard Weldwood . . . strong yet light in weight; durable, split-proof.

Waterproof, Molded and Metal-covered Weldwood . . . similar to Standard type but bonded with phenolic resin. U. S. Plywood has employed phenolic resin since 1932 to produce plywood that is permanently immune to moisture, rot and bacteria.*

Panel Sizes . . . up to 4 x 8 ft. stock sizes; special sizes up to 7 x 12 ft.

Available woods . . . more than 100 varieties, to meet specific requirements of strength, durability and beauty.

**Made by the Vidal Process U. S. Pat. No. 2073290.*



NEW PLASTIC GLUE

Weldwood Plastic Resin Waterproof Glue . . . makes strong, permanent joints. Readily mixed with cold water. Available in convenient sizes, 1 1/4 oz. cans up to 100 lb. drums. Literature, FREE sample on request.



ments and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission, Washington, D. C.

INDUSTRY LENDS MANPOWER TO SALVAGE PROGRAM

More than 3,000 trained field men, loaned by private industry to assist in the industrial salvage program, are augmenting the manpower of the WPB's Conservation Division in the most thoroughly organized search for industrial scrap to date.

This army of field men, donated for 90 days by industry, embraces men recruited from the iron and steel industry, the American Steel Warehouse Association, the Associated Equipment Distributors, and the National Association of Sales Executives. Working closely with the efforts of the Industrial Salvage Section of the Conservation Division, WPB, these men will call on industrial plants throughout the country in the interest of stimulating the scrap program and to insure that all possible dormant scrap is moved. Presidents of 70,000 industrial firms have received notice that they will be called upon by these field men.

Urging industrialists to cooperate with these field men to the fullest, Robert W. Wolcott, Chairman of American Industries Salvage Committee says: "The success of any salvage drive, either community or industrial, can be insured by a house-to-house or plant-to-plant canvass. No other means is so effective. The manpower which is being made available by industry makes possible for the first time a thorough canvass of the industrial plants of the country. There is no telling how much dormant scrap will be produced from this drive.

(Continued on page 216)



Request A Copy On Your Letterhead!

Plant Managers! Superintendents! Purchasing Agents! Production and Plant Engineers! Here's a book that will give you the answers to your marking problems. It contains hundreds of illustrations, with concise descriptions of Marking Devices for every Industrial Marking application. Yours for the asking . . . request a copy on your letterhead today!

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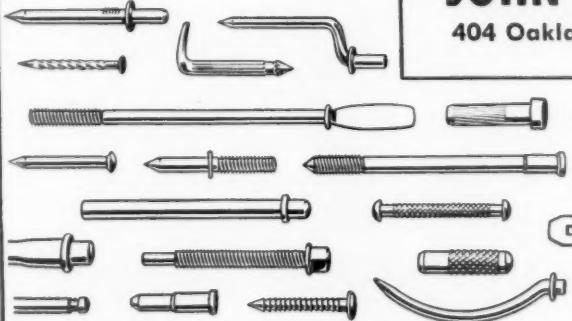
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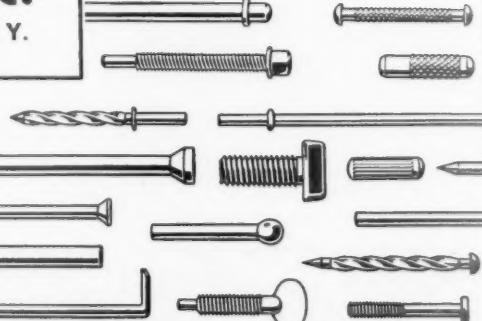
FASTER! FASTER! Speed is indispensable to victory. If you can't get your small parts when you need them or the way you want them, send us your specifications. Special nails, rivets and screws in any metal. Catalog on request.

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Established 1850



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The PURCHASING AGENT says:

"Cleaning Equipment that will give long satisfactory service is more important today than ever before to keep a plant at the peak of efficiency."

FULLER CLEANING EQUIPMENT

Every item is designed to do a first-class job and to help keep production at a high level. They help to maintain order and cleanliness.

Send for our Catalog of
FLOOR BRUSHES
SCRUB BRUSHES
DUST BRUSHES
WET MOPS
DRY MOPS
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WAX & POLISH



The **FULLER BRUSH** Company
INDUSTRIAL DIVISION
3585 MAIN STREET • HARTFORD, CONN.

When writing advertisers please mention Purchasing

(Continued from page 215)

but it is safe to say that the tonnage will be tremendous. I know that industrial managers will cooperate to the fullest when these field men call upon them, for such cooperation will insure the success of the industrial salvage program."

Theme of the drive for dormant industrial scrap is: "If it hasn't been used for the past three months and if no one can prove it will be used in the next three—find a use for it or scrap it."

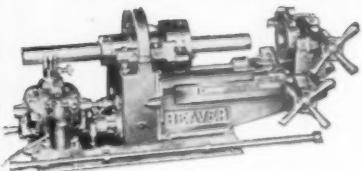
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SMALL PLANTS LOAN POLICY

The primary objective of the Smaller War Plants Corporation in making loans to small manufacturers from its \$150,000,000 fund will be to hasten winning the war, according to a statement by the Board of Directors in respect to the Corporation's loan policy. If a small manufacturer can show that the money he wants to borrow will help kill a Jap or a German, or in other ways shorten the war, there is a good chance that the loan will be granted. The Corporation is not going to ask for gilt-edge security. The statement follows:

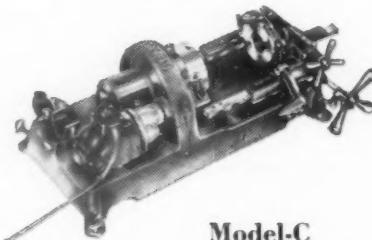
"As we understand it, our corporation was empowered to make loans to smaller manufacturers desirous of engaging in war work, because these small plants often need financial assistance that they can't get through ordinary banking or government channels. The banks are eager to lend money where conventional guarantees are available; so it seems obvious that we should give consideration to factors which a bank could not be expected to take into account.

The A-B-C of Pipe and Bolt Machines



Model-A

A high-speed heavy-duty deluxe Pipe and Bolt Machine. Range $\frac{1}{4}$ to 2-inch—up to 12-inch with geared tools and drive shaft. Bolts, $\frac{1}{4}$ to 2-inch. Wt. 415 lbs. Ask for Bulletin-A.



Model-B

A compact utility Pipe and Bolt Machine combining many features of Model-A with the easy portability of Model-C. Range $\frac{1}{4}$ to 2-inch—up to 8-inch with drive shaft and geared tools. Bolts up to $1\frac{1}{2}$ -inch. Weight 280 lbs. Ask for Bulletin-B.



Model-C

A sturdy little Power Unit. Converts Hand Pipe Tools into Power Tools from $\frac{1}{4}$ to 8-inches. Threads 8-inch in 6 minutes. Threads bolts up to $1\frac{1}{2}$ -inch. Equipped with automatic chuck wrench ejector—a safety feature. Two men can use it at the same time without interference. Easily portable—weights about 150 lbs. Write for Bulletin-C.

BEAVER PIPE TOOLS

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"The
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"The Corporation's objective is to expand and speed up war production and to strengthen our war economy. With this objective always before us, the first question we ask ourselves when considering an application for a loan is: 'Will this money help kill a Jap or a German; will it help save the life of a United Nations soldier, sailor or airman; will it help win the war sooner?' If the answer to that question is a definite 'Yes', the application has a pretty fair chance of acceptance.

"Obviously, we must give attention to the usual banking considerations and be able to see a reasonable prospect that the borrower will repay the loan—but we are not going to insist on gilt-edge security.

"Loan application forms call for the usual statements as to the financial condition of the applicant and the security available. Applicants must supply this information in detail, but we would like to receive all additional pertinent facts of a general character which will show specifically how the money will help win the war sooner.

"In instances where acceptable guarantees cannot be furnished, it may be possible to arrange some sort of control over the funds we lend and in this way get around the obstacle which has prevented loans through other channels."

Commenting on the statement, Mr. Albert M. Carter, a member of the Board who saw active service in France in the last war, said: "This might look to some persons as though we intended to play fast and loose with the \$150,000,000 which Congress has made available to us. That would be a faulty interpretation of our policy and a bad guess as to our intentions. We have no intention of wasting a penny if we can avoid it, but we do want to be realistic.

(Continued on page 218)



TAPS

High Speed Steel

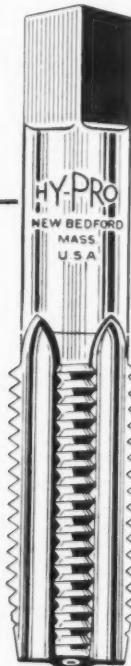
HAND and MACHINE SCREW TAPS

Cut Thread; Commercial
and Precision Ground
Thread Taps. Special
Ground Thread Taps.

HY-PRO Taps have Clean,
Sharp, Accurate Threads for High Production

HY-PRO TOOL CO.

475 Mt. Pleasant St., New Bedford, Mass.



WOMEN'S PART IN WAR PRODUCTION IS INCREASING . . .



. . . and their work is being made more convenient, comfortable and productive with —

HALLOWELL

SHOP EQUIPMENT

"Hallowell" offers 1367 work-bench combinations for selection. Five leg heights and widths. Smooth tops of laminated wood, Masonite or steel, if advantageous. Drawers with lock-and-key for security. Our deliveries are better than average.



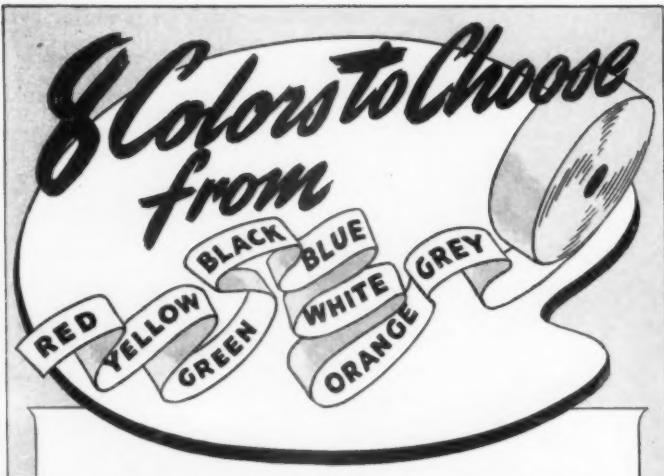
Write today for
complete details
and catalog.

Fig. 928
"Hallowell" Work-
Bench with laminated
wood top. Drawer is
extra. Pat'd and Pat's.
pending.

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA. BOX 590

BRANCHES — BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO



★ Want to reduce the risk of pilferage? Make your cartons more attractive? Distinguish your shipments from those of your competitor? For these and other good reasons, many shippers prefer colored gummed tape. That's why we wish to let you know that Orange Core Sealing Tape is regularly available in eight colors besides the brown... and in all standard widths, lengths and weights. But whether you use colored or plain tape, be sure to specify Orange Core — the sealing tape whose superior speed, stamina and low cost have made it **America's Most Popular Brand**

ORANGE CORE Sealing Tape

Moore & Thompson • Div. Hudson Pulp & Paper Corp. • 220 E. 42nd St., N. Y. C.



(Continued from page 217)

"A soldier's life often depends on the kind of weapon he has, and how long his ammunition lasts. A raid on an enemy objective may cost the lives of a hundred men instead of fifty if the attacking force is not equipped to the last degree with everything it needs. A ship may be sent to the bottom with all hands because it lacks necessary protection.

"That is the reason why, in trying to help the small manufacturers, our first consideration is going to be 'Will the loan help win the war sooner?' As a matter of fact, this is where genuine realism comes in. The only way one of our loans can help win the war sooner is by helping a manufacturer produce some needed war item. Any honest manufacturer who can do that is a good risk."

1 1 1

STEEL RECOVERY PROGRAM

First step in the War Production Board's huge steel recovery program, involving the purchase and redistribution of millions of tons of iron and steel products, was the mailing by the Steel Recovery Corporation of the first of 200,000 inventory certification forms to known and presumed holders of steel stocks rendered idle or excessive as the result of WPB orders and regulations.

Much of the iron and steel that soon will be directed into essential war production is available as the result of the series of orders, issued during the past few months, curtailing or eliminating use of these materials in the manufacture of hundreds of articles of everyday use.

SIMONDS for GEARS SINCE 1892

SIMONDS and Quality Gears — known for half a century. All types; cast and forged—steel, gray iron, bronze; also silent steel, rawhide and bakelite.

Write for information.

RAMSEY Silent Chain Drives and Couplings

THE SIMONDS GEAR AND MANUFACTURING COMPANY
25th and Liberty Sts. Pittsburgh, Pa.

RED TAPE MUST GO!

The first step in putting business methods to work on war production contracts is to make the present situation known. Reprints of this important article are available at 10 cents per copy. Send your orders to

PURCHASING, 205 East 42nd St., New York, N. Y.

THE PURE OIL COMPANY, Chicago

A COMPLETE LINE OF INDUSTRIAL PETROLEUM PRODUCTS
A Pure Oil engineer will help solve your lubrication problems. Write today.



BE SURE WITH PURE

When writing advertisers please mention Purchasing

The report forms now being mailed are simple one-page sheets on which recipients will indicate whether they hold steel inventories and, if so, the types of iron and steel of which they consist. Following receipt of this information, WPB will mail detailed questionnaire forms to cover each type reported, together with schedules of prices to be paid by the Government for material needed for the war effort.

The forms mailed during October must be completed and returned to WPB, % Steel Recovery Corporation, 5835 Baum Boulevard, Pittsburgh, Pennsylvania, not later than five days after their receipt by the firms to which they are addressed. Any stocks of the following are to be reported: Non-assembled carbon steel structural shapes, unsfabricated and fabricated (including angles of all sizes and sheet piling); carbon steel ingots, billets, blooms, slabs; carbon steel forgings; carbon steel bars and non-assembled products fabricated therefrom; carbon steel wire and non-assembled products fabricated therefrom; carbon steel plates and non-assembled products fabricated therefrom; carbon steel sheet and strip and non-assembled products fabricated therefrom; carbon steel pipe and tubing and non-assembled products fabricated therefrom; carbon steel castings; alloy steel (other than castings) and non-assembled products fabricated therefrom; stainless steel (other than castings) and non-assembled products fabricated therefrom; alloy steel castings (including stainless steel castings); tool steel (high speed, alloy or carbon) in any form other than finished tools, dies and gauges; iron castings; and, wrought iron.

Officials of WPB's Materials Redistribution Branch emphasized the immediate need of steel in war indus-

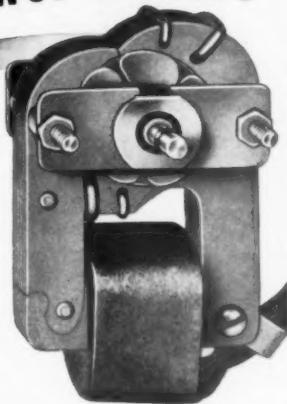
(Continued on page 220)

No time to gamble with small power motors

Power for war appliances must not fail. General Industries has been making high quality, dependable, small-power motors for thirty years—correctly engineered, simple, compact, sturdily built to give long-time trouble-free service under difficult

conditions. G. I. motors are available only on Government order, made to meet Government specifications. G. I. engineers will be glad to advise on specific requirements for war production.

THE GENERAL INDUSTRIES CO., Elyria, Ohio



GENERAL INDUSTRIES
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(Continued from page 219)

tries, and pointed out that owners are permitted by Priorities Regulation No. 13 to sell directly to qualified users. They urged that those holding needed materials in idle or excessive inventories institute an immediate and intensive hunt for such customers.

In cases of direct sale, the owner receives the going price for his property and war industry benefits by speedy delivery of material which can be used in its present form. In this connection, it was pointed out that while Government prices will be considerably above scrap prices, they will not equal the value of fabricated material, if the material must be remelted before it can take its place in the war effort. Scrap metal, as such, will not be purchased by the Government, and should be disposed of through authorized dealers.

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111

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(Continued on page 222)

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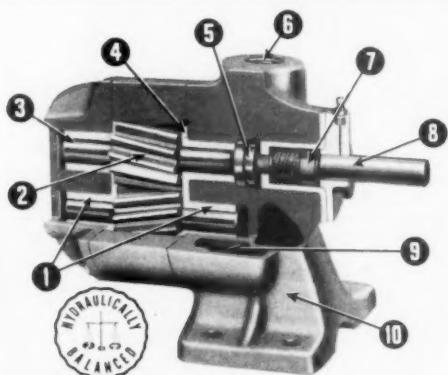
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(Continued from page 220)

September 1, includes statements on all the branches of Government, a list of principal officials, separate sections on the emergency war agencies, organization charts, publications and commonly used abbreviations.

It also contains an appendix on agencies abolished, transferred or consolidated since 1933.

The Manual may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., or at the U. S. Information Center, 1400 Pennsylvania Avenue N.W. Single copies cost \$1; subscriptions covering the three editions a year cost \$2.75.

1 1 1

SIX-DAY WEEK FOR WLB

The War Production Board has gone on a full 6-day week for the duration.

The regular office hours of WPB, both in Washington and in the field, now are from 8:30 a.m. to 5:15 p.m. daily except Sunday. However, under the terms of the Administrative order setting up the new system, employees who work on Saturday afternoons are, in accordance with law, granted compensatory leave of four hours to be taken sometime during the next week.

Purpose of the order is to insure that all offices and units of WPB function six days a week, without a let-down on Saturday afternoons.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Purchasing, published monthly at Orange, Conn. for September 1942. State of New York } ss. County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared A. M. Morse, Jr., who, having been duly sworn according to law, deposes and says that he is the Business Manager of the magazine "Purchasing" and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

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5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is.... (This information is required from daily publications only.)

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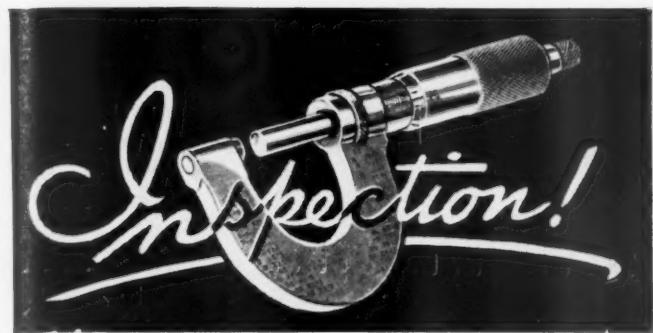
(Signature of business manager)

Sworn to and subscribed before me this 25th day of September, 1942.

GEO. P. VALLAR,

Notary Public.

(My commission expires March 30, 1943)



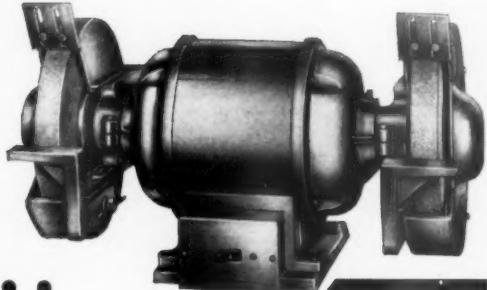
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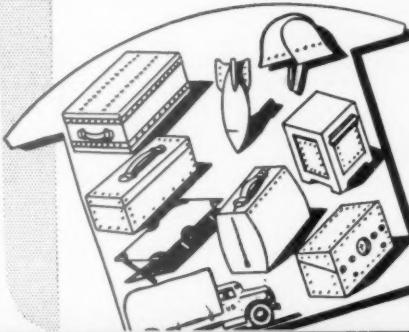
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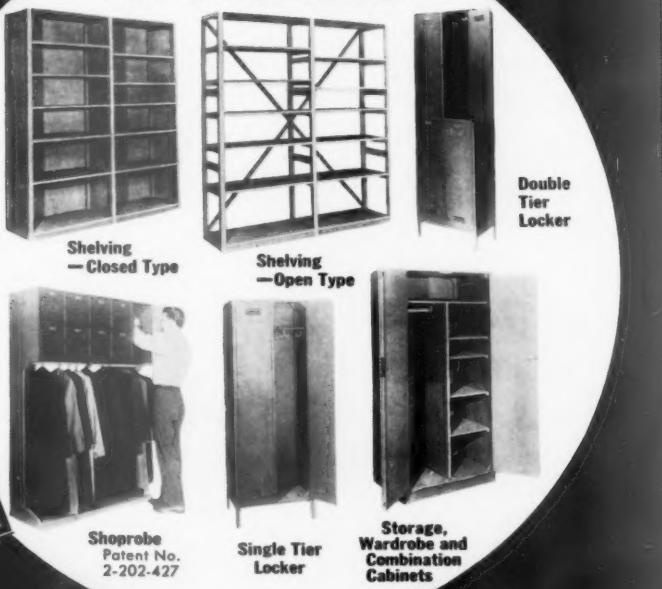
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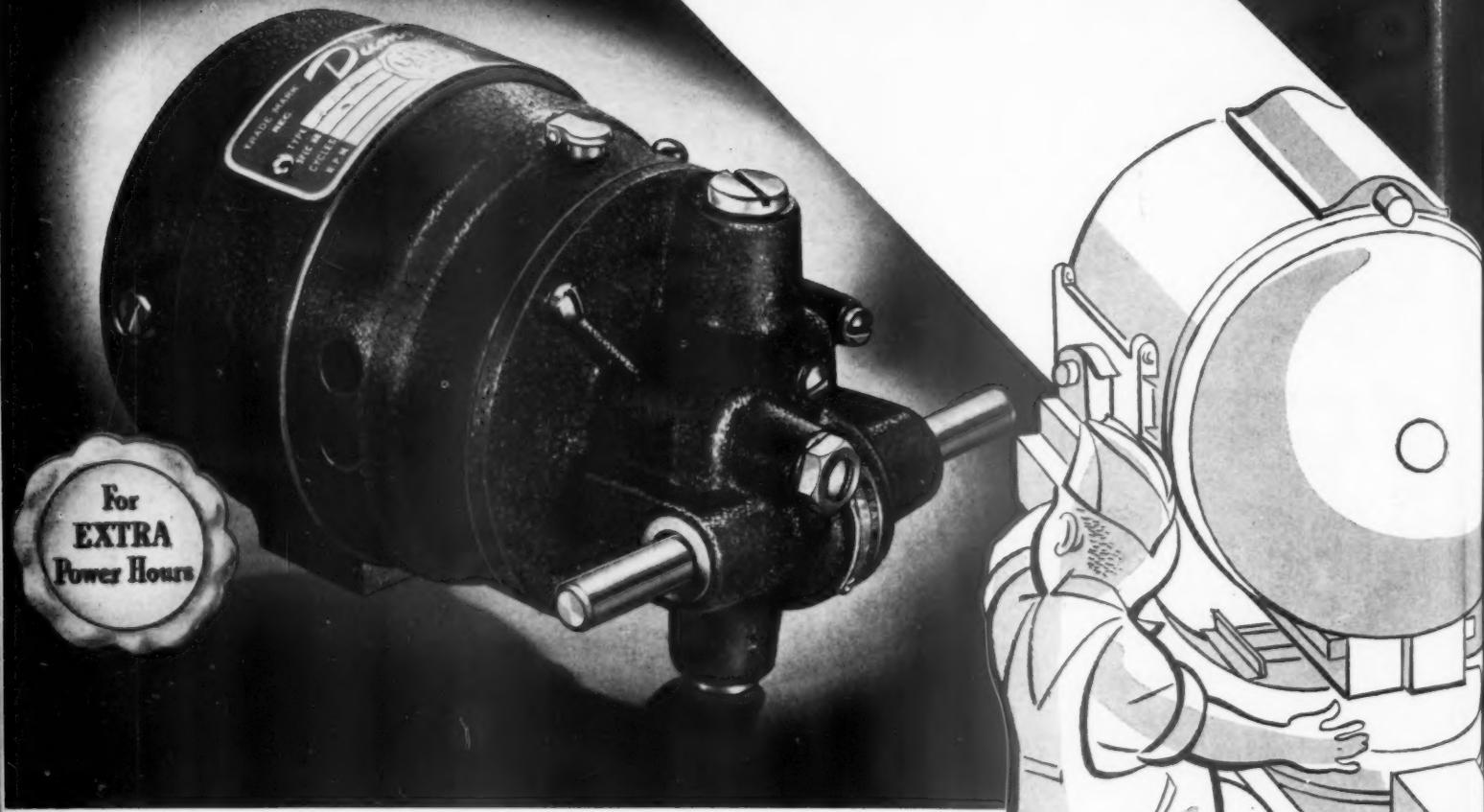


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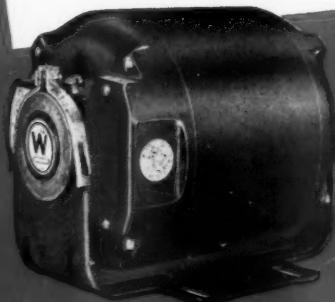
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WITH THE ON THE FRAME YOU CAN BET ON IT . . . YOU'VE PICKED

A SURE WINNER . . .

3-05168



Westinghouse
SMALL MOTORS



WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, EAST PITTSBURGH, PENNSYLVANIA



This Man can Give You what You Cannot Buy

What is more vital to war production than anything on the critical list . . . yet is not for sale at any price? What makes the difference between success and failure in keeping your deliveries on schedule? It's that precious intangible . . . TIME.

Here is a man—your Local Industrial Distributor—who has made a life-long business of gaining time for others—who is organized and prepared to give you what you cannot buy . . .

TIME . . . saved by blazing a trail for your orders through the forest of Priorities, uncovering suitable substitutes for much-needed items which your rating denies you.

TIME . . . saved by keeping informed on the latest Government Regulations and Restrictions, interpreting them for you.

TIME . . . saved by providing repair parts and service, getting damaged equipment

back on the job, when it could not possibly be replaced.

TIME . . . saved by pointing out to you "standard" items, ready for delivery, that can replace non-existent "specials."

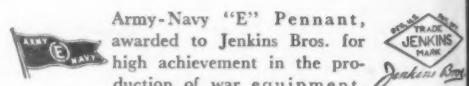
TIME . . . saved by advising you on maintenance measures to keep your operating equipment producing at full efficiency.

TIME . . . saved in performing near-miracles in the delivery of available items, in spite of increasing limitations on his delivery facilities.

Remember your Industrial Distributor

whenever the TIME factor threatens your schedules. With his help, your plant will produce its share of the "enough—in TIME" that will win the war.

For your valve needs consult a thoroughly time-conscious Jenkins Distributor.



Jenkins Bros., 80 White Street, New York, Bridgeport, Atlanta, Boston, Philadelphia, Chicago. Jenkins Bros. Limited, Montreal, Canada; London, England.



JENKINS VALVES

For every industrial, engineering, marine and power plant service . . . in Bronze, Iron, Cast Steel and Corrosion-Resisting Alloys . . . 125 to 600 lbs. pressure.